

University News

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K. GOPALAN

Education for All

HARISH KUMAR

Management Education and Case Method

RAJENDRA MISHRA

Evaluation of Educational Television Programme

V.B.B. SARMA

Teachers' Perception of Large Classes

RAMLAL PARIKH

Building a Non-Violent Society — Convocation Address

UNU LEADERSHIP ACADEMY

PHD IN DEVOTIONAL LITERATURE

WORKSHOP ON WOMEN'S EDUCATION



Association of Indian Universities



SAHA INSTITUTE OF NUCLEAR PHYSICS

Sector-1, Block-AF, Bidhannagar

Calcutta-700 064

No SINP/R/Advt/12/95

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2 Reader (SD)	Rs 3000-100-3500-125-4500	Rs 8 180 00
3 Lecturer (SC)	Rs. 2200-75-2800-EB-100-4000	Rs 6 062 00

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Reader(SD)

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Lecturer(SC)

Young bright scientists with a Ph D degree

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1 Associate Professor (SE)/Reader(SD) 3 Posts in Theory Group

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For Post (2) Nuclear Physics [nuclear models medium and intermediate energy nuclear reactions high energy nuclear collisions] Astrophysics [including nuclear astrophysics neutrino astrophysics problems of the early universe etc]

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2. Reader(SD)/Lecturer(SC) 4 Posts in Nuclear Science Group

For Post (1)&(2) Expertise in accelerator based Nuclear Spectroscopic investigations with good background in theoretical nuclear structure studies and good knowledge in nuclear instrumentation and data acquisition system

Or

Accelerator based atomic physics with good knowledge in computer based data handling systems

For Post (3) Experience in the study of Radiation and Photochemistry with publications of commendable merit in the relevant fields

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3 Reader(SD)/Lecturer(SC) One Post in Plasma Physics Group

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For Post (2) Preference will be given to those who have experience in the following experimental areas High Tc Superconductivity Low Temperature Physics and Magnetism

Application (on plain paper) with Curriculum Vitae should reach the undersigned by January 15 1996

D N Bhattacharjee
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Editor
SUTINDER SINGH

Education for All New Initiatives

K Gopalan*

The Education for All (EFA) Summit of the nine high population countries held in New Delhi in December 1993, which was an offshoot of the World Conference on Education for All held in Jomtien, Thailand in March 1990, culminated in a policy declaration and framework of strategies for providing education for all. The policy declaration called for providing basic education facilities for every child and consolidating efforts towards basic education for children, youth and adults. In the context of an integrated approach to basic education for all people, literacy and adult education programmes were to be improved and extended, eliminating disparities of access and improving the quality and relevance of basic education.

Four-and-a-half decades ago, we in India had taken a pledge through our Constitution that within a period of ten years from 1950, free and compulsory elementary education would be provided to all children up to 14 years of age. Since 1950, determined efforts were made towards the achievement of this goal. Over the years, there have been very impressive increases in the number and spread of institutions as well as enrolment. Today, India has about 574,000 primary schools (classes I-V) and 156,000 upper primary schools (classes VI-VIII), the number of teachers in them being 1 705 million and 1 082 million respectively. The enrolments at the primary and upper primary stages are 109 million and 40 million respectively. Primary education is imparted in 50 languages. The Indian elementary education system is thus the second largest in the world enrolling 149 million children constituting 82% of the children in the age group 6 to 14. It provides accessibility within 1 km of walking distance to over 826 000 habitations covering more than 94% of the country's population. During the past one decade, enrolment rate has grown close to 100% at primary stage.

However universalisation of elementary education (UEE) in its totality is still an elusive goal and much ground is yet to be covered. Dropout rates continue to be high (36.3% in classes I-V and 53% in classes I-VIII), retention of children in schools is poor, achievement levels are low, and wastage is considerable. Despite increased participation of girls, disparity still exists, more particularly among scheduled castes (SCs) and scheduled tribes (STs). In the National Policy on Education (NPE) 1986, with revised modifications in 1992, we resolved to achieve the goal of UEE by the turn of the century emphasising on three aspects: universal access and enrolment, universal retention up to 14 years of age, and a substantial improvement in the quality of education. The resolve is spelt out unequivocally and emphatically in the programme of action (POA) 1992, which gave unqualified priority to UEE. One is therefore pinning great hopes on the new innovations and alternative strategies, which are being applied to ensure that the shortcomings and inadequacies, which did not

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allow us to realise this goal so far, are overcome, and the new resolve will not have to be extended further. It can be said that the Indian NPE 1986 and its POA 1992, while resolving to ensure free and compulsory education of satisfactory quality to all children up to 14 years of age by the year 2000 A D, adumbrated the policy statement made at the EFA Summit.

New Initiatives and Strategies

Some of the new initiatives and strategies to achieve the goal of education for all are

- 1 Disaggregated target setting and decentralised microplanning which will provide the framework of universal access and community participation
- 2 Strengthening the alternative channels of schooling such as the non-formal education (NFE) system for those who cannot avail of the conventional full-time schooling
- 3 Introduction of minimum levels of learning (MLLs) at primary and upper primary stages to improve learner's achievement
- 4 Improvement of school facilities by revamping the scheme of Operation Blackboard (OB) and connecting it to the MLL strategy
- 5 Establishing linkages between programmes of early childhood care and education (ECCE), primary education and adult literacy
- 6 Addressing the more difficult aspects of access, particularly to girls, disadvantaged groups and out-of-school children
- 7 Restructuring of teacher training in view of the changed strategies and programmes
- 8 Using the distance mode for education and training
- 9 Availing of external financial support for basic education
- 10 Launching the National Elementary Education Mission (NEEM)

Decentralised Planning and Implementation

Our experience with UEE encompasses the entire Third World experience. On the one hand, we have states like Kerala, which have achieved universal literacy as well as (UEE) in terms of school participation with social indicators as good as those of the best among the Third World countries. On the other, we have states like Bihar and Madhya Pradesh with indicators as worse as those of the

Sub-Saharan African countries

One of the new strategies to achieve UEE is adoption of disaggregated target setting and decentralised planning. The government's commitment to 'planning from below' and 'people's participation' led to the 73rd and 74th amendments of the Constitution giving recognition to local self-governing institutions called Panchayats. A three-tier structure at the district, sub-district and village level has been established and many items have been earmarked for administration by the elected district bodies. These Panchayats will have the responsibility of preparing development plans and implementing educational programmes. Each Panchayat would constitute a village education committee (VEC) which would be responsible for the administration of educational programmes at the village level. Decentralisation of school management to grassroots level bodies is an important policy initiative.

Our problem is one of vast regional disparity, which is compounded by the fact that we have to impart education in 50 languages. Our long experience with the pursuit of UEE has established that UEE is contextual. The contextuality varies widely across the country. Even in a state like Kerala, where participation is near universal, much requires to be done in respect of quality and achievement. In such states, the pursuit of UEE would be mainly in the areas of quality, facilities and achievement, while in other states participation and demand aspects would need more attention. Therefore the attempt would be to prepare district-specific population-specific plans for UEE within the broad strategy frame of microplanning through people's participation. Microplanning has been defined as a family-wise and child-wise design of action to ensure that every child regularly attends a school or an NFE centre and completes 8 years of schooling at a pace suitable to him/her and attains essential level of learning.

Guidelines for operationalising microplanning have been prepared and distributed to the state governments. The concepts of microplanning and local level capacity building have been given currency and efforts launched to decentralise educational planning and management. Microplanning exercises have already been undertaken in several states to ensure that all children receive primary education of satisfactory quality either through formal schools or through part-time NFE centres.

To operationalise the strategy for UEE through

disaggregated target setting and decentralised planning, a new scheme titled "District Primary Education Programme (DPEP)" has been evolved. The concept of DPEP is a beachhead for effecting improvements and full-scale development of the entire elementary education sector. The overall goal of the programme is the reconstruction of primary education as a whole in the districts instead of the piecemeal implementation of the various schemes. The fundamental principle of DPEP is capacity building at all levels to evolve further strategies which are replicable and sustainable. The specific objectives of this multi-faceted programme are

- to reduce differences in enrolment, dropout and learning achievement among gender and social groups to less than 5%,
- to reduce overall primary dropout rate to less than 10%,
- to raise average achievement levels by at least 25% over measured baseline levels and ensure achievement of basic literacy and numeracy competencies and a minimum of 40% achievement levels in other competencies by all primary school children,
- to provide, according to national norms, access for all children to primary education classes (I-V) i.e. primary schooling wherever possible or its equivalent non-formal education.

The programme would strengthen the capacity of national, state and district institutions and organisations for the planning, management and evaluation of primary education. A national level structure — National Elementary Education Mission (NEEM) — has recently been set up to oversee, among others, the implementation of this programme throughout the country.

Alternative Channels of Education

Non-formal education has become an accepted alternative channel of education for children who cannot attend full time schools due to various socio-economic constraints. To reach this large segment of marginalised children, we in India have been running, since 1979-80, a programme of NFE for children of 6-14 age group, who have remained outside the formal system. These include dropouts of the formal schools, children from habitations without schools, working children, children who have to remain at home to do domestic chores, and girls who are unable to attend formal schools for a variety of reasons.

The enlarged and modified version of the NFE programme now in operation, visualises NFE as a child-centred, environment oriented and flexible system to meet the diverse educational needs of the comparatively deprived geographical and socio-economic sections of society. Non-formal education is designed to overcome the shortcomings of the formal school and make education a joyful activity. Decentralised community participation through village education committees (VECs) in planning, running and overseeing the programme has been considered crucial for its success. Although the focus of the programme is on the educationally backward states, it also covers urban slums, and hilly tribal and desert areas in other states as well. Today, the programme is being implemented in 20 states/union territories through the state governments and voluntary organisations. Over 450 non-governmental organisations (NGOs) are involved in the implementation of the NFE programme. So far 260,000 NFE centres have been set up. About 100,000 NFE centres are exclusively for girls, who are the main victims of socio-cultural and socio-economic factors. The estimated enrolment capacity is about 6.5 million children. Under the NFE programme, efforts are now being made to further improve the quality, allow greater flexibility to implementing agencies and relocate NFE centres on the basis of microplanning/area survey. The NFE programme is being linked to ground realities allowing for continuous experimentation. Development and scaling-up of effective NFE models that can help the learners to learn at their own pace is a major thrust area.

Minimum Levels of Learning (MLL)

The need to lay down minimum levels of learning (MLL) emerged from the basic concern that irrespective of caste, creed, location or sex, all children must be given access to education of a comparable standard. The MLL strategy is an attempt to combine quality with equity. It lays down learning outcomes in the form of competencies or levels of learning for each stage of elementary education. The strategy also prescribes adoption of measures that will ensure achievement of these levels by children both in formal schools as well as in NFE centres.

The focus of MLL strategy is development of competency-based teaching and learning. Preliminary assessment of the existing levels of learning achievements has revealed that they are quite low across several districts. Minimum levels of learning in respect of three subjects namely language, mathematics and environmental studies have

already been laid down for the primary stage. It has been stressed that emphasis should be on concept formation rather than on content. The burden of non-comprehension and overload of content are forcing children to resort to rote memorisation. The issues of content versus concept, understanding versus rote memorisation, unachievable content load versus achievable set of competencies have been integrated into the new MLL approach. Minimum levels of learning have been specified in terms of competencies expected to be mastered by every child by the end of a particular class. The programme has been initiated throughout the country with the help of voluntary agencies, research institutions and others concerned. Minimum levels of learning for the upper primary stage are now being finalised.

Revamping Operation Blackboard (OB)

Recognising the unattractive school environment, unsatisfactory condition of school buildings, inadequate physical facilities, and insufficiency of instructional materials in primary schools, which function as demotivating factors for enrolment and retention, a scheme symbolically called "Operation Blackboard" was introduced in 1987 to bring all existing primary schools in the country to a minimum standard of physical facilities. Under this scheme, each school is provided with (i) at least two reasonably large all-weather rooms along with separate toilet facilities for boys and girls, (ii) at least two teachers (one male and one female), and (iii) essential teaching and learning materials including blackboards, maps, charts, a small library, toys and games, and some equipment for work experience.

External evaluation of the scheme indicated that lack of training of teachers in using the teaching materials, specification of a large number of uniform facilities to be provided without modification according to local needs, and lack of provision for breakage of equipment were some of the drawbacks in implementation of the scheme. Effective steps have since been taken to remove these drawbacks. The scheme of Operation Blackboard has also been modified and expanded to provide a third room and a third teacher to primary schools where enrolment exceeds 100, and to extend to upper primary schools. The scheme is concentrating on rural areas and SC/ST areas, girls schools being given the first priority.

Linkages between Early Childhood Care and Education (ECCE) and other Programmes

Early childhood care and education (ECCE) is

viewed as a crucial input in the strategy of human resource development, as a feeder and support programme for primary education, and as support service for working women of the disadvantaged sections of society. Since the age-span covered by ECCE is from conception to 6 years, emphasis has been given to a child centered approach and play way and activity based learning in place of formal methods of teaching including introduction of the 3 R's. Keeping in mind the role of ECCE as a support service in UEE, it is deliberately directed to the most under-privileged groups, those who are still outside the mainstream of formal education. The aim of ECCE is that every child should be assured access to the fulfilment of all basic needs. It involves the total development of the child including physical, psycho-motor, cognitive, language, emotional, social and moral. The present ECCE programmes include

- the integrated child development service (ICDS),
- the scheme of assistance to voluntary organisations for conducting early child education (ECE) centres,
- *balwadis* and day-care centres run by voluntary agencies with government assistance,
- pre-primary schools run by state governments, municipal corporations and other agencies, and
- maternal and child health services through primary health centres, sub-centres and other agencies.

The ICDS originally started on October 2, 1975 is today the largest outreach programme in the world reaching out to over 21 million children and mothers in an attempt to improve their health and educational status. In order to give a further boost to universalisation of elementary education, and improve enrolment, retention and attendance in primary schools and also the nutritional status of children, a nationwide midday meal programme has been launched from August 15, 1995. The whole programme is being built around community participation, teachers' empowerment, decentralisation and flexibility.

Appropriate linkages are being established between ECCE programmes, primary schools, NFE centres and other related schemes of UEE.

Promotion of Access to Girls and Disadvantaged Groups

As with any educational indicator, gender disparities are conspicuous in regard to enrolment and

retention Over the past 25 years, enrolment of girls at the primary stage has grown from 5 million to 47 million and at the upper primary stage from 0.5 million to 16 million. But still disparities persist. Today girls account for only 46% of the enrolment at the primary stage and 38% at the upper primary stage. The dropout rates of girls at the primary and upper primary stages are higher than those of boys. Regional disparities are also conspicuous. The very low female literacy (20% to 29%) in some of the major North Indian states causes grave concern. The rural girls are doubly disadvantaged by non-availability of educational facilities and by the domestic chores they have to do at home. Recognising this gender bias, a gender perspective is being built into the various programmes with specific components for ameliorating the condition of the girl child.

Concerted efforts are now on to reach out to the girl child in rural/remote areas and urban slums by designing special NFE programmes with a view to getting them back into the formal stream. The NFE programmes are being dovetailed to the total literacy campaigns (TLC) to reach out to the girls in the 10-20 age group. Programmes for continuing education are being designed to ensure that neo-literates and school going girls have access to reading materials.

An important constraining factor for female education is the lack of women teachers in rural areas. Therefore, special efforts are being made to recruit women teachers and to augment teacher training facilities for women so that adequate number of qualified women teachers are available. Coordinated efforts are also on to provide the necessary support services to enhance their participation and performance.

With the aim of empowering women to take control of their lives, a unique initiative called *Mahila Samakhyas* (Women's Empowerment) has been introduced in 22 districts. The project provides the crucial conceptual and practical link between empowerment and education. The emphasis of this initiative is on bringing about a change in women's perception about themselves and that of society in regard to women's traditional roles.

We, in India, are unambiguous about removal of disparities and attainment of equalisation of educational opportunities for SCs, STs and other backward sections. A number of strategies aimed at accelerating their rate of enrolment and retention have been detailed and are being implemented. Because of the affirmative policies of the government,

the enrolment of these categories has increased considerably at the primary stage. The participation of SCs and STs at the primary level is more or less in proportion to their share in population. Dropouts, though declining, continue to be significantly large [primary stage (classes I-V) SC 49%, ST 64%, upper primary stage (classes VI-VIII) SC 68%, ST 79%]. Gender disparities are conspicuous among SCs and STs.

To ensure universal access and enrolment of SC children in rural areas, priority is given to the needs of SC habitations and hamlets in opening primary and upper primary schools. For SC children access and enrolment are assured primarily in the formal school. Where they are not able to attend the formal school, provision is made for non-formal and distance education centres. Every ST habitation is being provided with a primary school or other suitable institution. In tribal areas, educational plan is being implemented in an integrated manner. Pre-school education, non-formal education, elementary education and adult education are being organically linked and integrated to ensure achievement of total literacy of the entire population.

Adequate incentives are given to the children of SC, ST and other backward sections in the form of scholarships, uniforms, textbooks, stationery and midday meals. All schools, NFE centres, and pre-school centres in SC/ST habitations are being equipped with necessary and essential infrastructural facilities in accordance with the norms laid down for Operation Blackboard and for achieving MLI. Operation Blackboard has already covered almost all schools in tribal areas. The indigent families among SC/ST are given incentives to send their children, particularly girls, to school.

Restructuring Teacher Training

Teacher performance is the most crucial input in the field of education. In the ultimate analysis, the national policies on education have to be interpreted and implemented by teachers as much through their personal example as through teaching-learning processes. With a view to improving the quality and competence of teachers, a centrally sponsored scheme of Restructuring and Reorganisation of Teacher Education (RRTE) was launched in 1987.

During the period 1987-90, nearly 1.8 million teachers were trained under the programme of mass orientation of school teachers (PMOST). Most of them were primary and upper primary teachers. The main objective of the programme was to orient teachers in the main priorities and directions envis-

aged in the NPE 1986 and to improve their professional competence

Among the other main components of the RRTE, as far as elementary education is concerned, are

- 1) setting up of District Institutes of Education and Training (DIETs) in all districts to provide good quality pre-service and in-service training to elementary school teachers and adult education/non-formal education personnel and to provide resource support to these systems, and
- 11) organising Special Orientation Programme for Primary Teachers (SOPT) with a view to providing training to teachers in the use of OB materials, orienting them towards MLL strategy and encouraging them to adopt child centred approach to learning

More than 300 DIETs have already become operational and have started conducting training programmes. The use of distance mode with a strong interactive face-to-face component is expected to cover a large number of teachers. The SOPT launched in 1993 is now going on in almost all states and has a physical target of covering 450 000 primary teachers every year until the year 1997. The programme is being strengthened through an interactive satellite linked module.

A National Council for Teacher Education (NCTE) was set up in 1993 with statutory status for the effective implementation of all teacher education and training programmes and to achieve planned and coordinated development of the entire teacher education system throughout the country. The regulation and proper maintenance of norms and standards in the teacher education system is the responsibility of the NCTE.

Distance Mode for Education and Training

In recent years we have been experimenting and offering programmes of education and training through the distance mode. The National Open School (NOS) established in November 1989 is the node for a network of state open schools that extends open learning facilities at the secondary level to all parts of the country. The NOS also offers foundation courses equivalent to 7 years of schooling as well as a series of vocational courses. It has now formulated an innovative project for providing alternative schooling to neo-literates from the TLCs and to school dropouts as well as NFE dropouts who have acquired literacy skills. This project is expected to benefit millions of neo-literates particularly in the age group of 10 to 20.

External Financial Support for Basic Education

As a matter of policy and principle, India has not been seeking financial support from external agencies to implement the programmes of basic education. This situation changed in 1991, when a conscious and strategic decision was taken to avail of external assistance to achieve the goal of Education for All (EFA).

Today, a number of agencies including the World Bank, Unesco, Unicef, Swedish International Development Agency (SIDA), International Development Association (IDA), and British Overseas Development Agency (ODA) are sharing our concerns in this area. A new phase has, therefore, emerged — a phase of partnership between the inherent potential of the country and the financial and other support from external agencies.

The Government of India now proposes to increase the outlay for education from Rs 180 000 million in the Eighth Plan to Rs 900,000 million in the Ninth Plan. About 6% of the gross domestic product (GDP) is proposed to be spent on education. Primary education and adult education will have a proportionately higher share of this increase in allocation.

National Elementary Education Mission (NEEM)

With the objective of mobilising all the resources — human, financial and institutional — necessary for achieving the goal of UEE by the year 2000 A D, a National Elementary Education Mission (NEEM) has been set up in August 1995 with the District Primary Education Programme (DPEP) as its core. The macro objective of the mission is to bring to bear upon the UEE a sense of expedition and resolve and to take concerted action in partnership with the states, local bodies, teachers and others concerned. This Mission will monitor and implement through the mission mode all the meticulously formulated strategies based on microplanning, and ensure that free and compulsory education of satisfactory quality is provided to all children up to 14 years of age by the turn of the century.

To conclude, there is at present a clear breakthrough in attitudes and perceptions in the matter of education for all. New initiatives and radical alternatives are now being pioneered on a war footing to reach the target. With this sort of an aggressive approach, there is no reason why we should not be able to achieve the goal of "education for all" by the turn of the century, thereby redeeming a pledge long unfulfilled.

Management Education and Case Method

Harish Kumar*

The case method of learning was first introduced in 1871 by Christopher Langdell in the Harvard Law School. The technique of using case studies as a pedagogical tool in business administration was developed in the 1920s at the Harvard Graduate School of Business Administration. In recent years the value of case method has increased tremendously in management education and training, rather, it has become part and parcel of every training programme. The case method, if well led, proves to be the most effective method of developing the ability to handle a business situation in an effective manner.

A case is a description of a situation. A typical case consists of a few pages of written description of an actual situation facing an organisation. It usually describes how the present situation developed and what problems is currently being faced by the key personality in the case. Tables of data, diagrams and photographs may be necessary to provide a complete picture. Appendices are normally used to contain large amounts of data that would otherwise clutter the text.

Although cases are usually on organisational situations, they may also be on the problems of individuals, couples, groups, social institutions or even nations. Cases are not the property of management education but they may be used in social administration, psychiatry, architectural studies, engineering education and, in all those subjects where the skills of solving unstructured, complex and hazy problems are needed. After all the case method has its origin in the methods used to teach Harvard Lawyers. But it does not mean that case method is the best in all situations, in fact, a wise teacher first looks into the situation then decides which of the pedagogical tool or tools he is going to adopt to make his teaching more fruitful.

Case Categories

Cases may be accurate descriptions of real situations or they may be works of fiction. Most of the cases fall somewhere between these two extremes. Organisations very often wish that their identities

are not publicised for fear of revealing information which might be useful to competitors. Thus, fictitious names are used. In other cases many of the data fundamental to the understanding of a case are disguised by changing them. This can have unfortunate results also. Some cases are fully fictitious. These cases are called Armchair cases. Armchair cases are difficult to write and there is an absence of outside facts against which they can be checked. It is quite possible that there is an inclusion of unreal and unrealistic business problems which may hardly have any practical value. In fact, writing armchair cases is a Herculean task. It requires a substantial amount of experience, exposure and expertise.

Case Writing

Cases may be written with primary as well as secondary data and information. Cases written exclusively from published sources do not seem to be live. When we write cases based on primary data we have to pass through the whole process of case collection. The needed data may be gathered through interview. Following tips may be of immense use for conducting a purposeful interview.

Before the Interview

- Expand your working knowledge of business and industry,
- Make appointments well in advance,
- Begin with top executives,
- Learn all about person, company and industry you are visiting, and
- Know what you need.

During the Interview

- Explain all about your institute's case collection policies and procedures
- Collect the needed material,
- Collect the material you may not need,
- Observe.

After the Interview

- Maintain confidence,
- Disguise facts and figures, and
- Seek permission from the company to use the case.

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The quality of a case is ultimately measured by its usefulness as teaching material. Certain literary standards are required to write a good case. The final draft of the case must be in good English and free from grammatical mistakes and defects in organisation of the material rather, the case should be ready for publication. A subject expert may be consulted for this purpose. The following techniques may be taken into consideration while writing a case.

1 *Organising the material*

- If you could not organise the material in the field do it now
- Prepare outline of the case and use it in writing

2 *Usually adopted procedure*

- Use of the past tense
- Tabulation
- Exhibits and appendices
- Checking figures and disguises
- Facts available should be included
- Decisions of company executives
- Published sources

Case Teaching

There are several techniques for actual discussion. An experienced and leading teacher will select and adapt his technique according to the nature and purpose of the case to be discussed. It is acceptable that in a case discussion students speak more than the instructor. The instructor takes students as adults and treats them as equal to him. Following are the functions of a teacher in a case discussion.

- Starting the case
- Holding the balance between participants
- Switching the discussion from fruitless to fruitful courses
- Developing a suitable environment and building a rapport with the students
- Summarising

It's advisable to make a few introductory remarks about case method if the group is unfamiliar with it. The other factors to which attention is to be paid are

- Number of participants
- Length of the case, and
- Efforts required on the part of students

Analysis of facts is a must in a case discussion but it is quite boring and a frustrating task. An oral quizzing which leads to a mere repetition of case

facts is likely to be disastrous.

In a printed or mimeographed case, often there is a set of questions. A teacher may start discussion with these questions or with a totally new set of questions.

There are different views whether the additional information available with the teacher should be given at the end or beginning or not at all. But one thing is to be kept in mind that this information, usually about the decision actually taken, should not be considered as the only right way of doing things.

Case teaching is a highly individualistic art. It is very difficult, rather impossible, to imitate others. However, a new teacher may follow the steps given below to facilitate his or her case handling.

Master the Facts and Figures of the Case

- It needs to read the case again and again, making outlines, marginal notes and written summaries of essential details. If there are figures in the case he or she ought to make many calculations. He will scrutinise the apparent issues to make sure that they are the real ones. He may find it helpful to develop a conceptual framework which will show how the several pieces of puzzle fit together.

- Consider the specific learning objectives towards which he or she wishes to point the case discussion.

Often it is suggested that the teacher should prepare a teaching note and a technical note should be prepared, if needed.

- Refer to the notes of other teachers about the same case that may give new ideas or a fresh line of action.
- To discuss the case with other teachers to have an integrated viewpoint.

Last but not least, the teacher will note down the points that emerged during discussion.

Teaching Note

The teaching note is written by a case writer. This teaching note may be used as an aid by a teacher. Teacher may also prepare a teaching note before discussing the case in the classroom.

Components

A teaching note may include the following components

- Course for which the case has been prepared
- The purpose of the course

- The position of the case in the course design
- Objectives of the case
- Student preparation
- Background information required
- A Technical Note/Industry Note required
- Major issues to be covered
- Teaching strategies that can be used
- Analysis of major issues
- Cross references of other cases if the particular case may be used as a part of a sequence
- Past experience in the classroom
- Assignments to the students (before and after the class)

Case Method and Other Related Factors

Management is an interdisciplinary subject. It is a perfect blend of theory and practice. So far as the theory is concerned we can depend upon teachers but for practical purposes we will have to be dependent on industry people. The best possible that can be done is we can prepare a hybrid kind of a teacher who is good at theory and practice both. There are certain factors which are interrelated and may be quite useful in bridging the gap between theory and practice. They may also be taken into consideration while introducing case method as a pedagogical tool in a management institute. These factors are as follows:

Research and Publication

We can collect data and information through research and write good cases. These cases may be discussed with students in the class and several solutions may be evolved. The publication of these solutions may be quite useful for practitioners for handling real life business situations. This is a useful cycle for both the theoreticians and practitioners.

Curriculum Design

While framing the course curriculum for management education and training we may include cases. A case is a simulation kind of exercise. Students get an opportunity to deal with different business situations by sitting in classrooms only. This helps them out in their post education life.

Report Writing as a Pedagogical Tool

The skills of report writing may be well utilised while writing cases. Group report writing is a very good link between theory and practice. Students are assigned a group task in the form of writing a project report on some macro or micro part of an industry. Students visit companies, identify the

problems, make a substantial study of the problems and suggest solutions. For communicating all this they use report as a communication tool. They may also prepare cases through this exercise. Students may use these experiences in their working life while handling real business situations.

Consultancy

Through consultancy projects a management teacher will have deeper insights into real business world and may write down many cases on different business situations. These cases may be used for learning purposes in the classroom. Thus, consultancy is not only a source of income but also a good link between industry and academia.

Academic Environment and Culture

If we really want to reduce the distance between theory and practice we will have to change the academic environment prevailing in management education institutions, particularly the universities management departments. We will have to give enough autonomy to the teachers to mould their course curriculum as per the need of the hour and use the pedagogical tools they like. Administration should also make it possible to invite people from industry for interactions with students and teachers and a separate budget ought to be maintained to conduct industrial tours, talks and training. Industry people may be involved in student evaluation.

Summary

The use of case method in management education and training has become almost necessary, rather it has become the soul of every management training programme. Good cases may be written with the help of industry and by following certain literary standards. The case method can play a vital role in bridging the gap between theory and practice or academia and industry.

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Evaluation of Educational Television Programme With Special Reference to UGC Countrywide Classroom

Rajendra Mishra*

Introduction

It is well established now that television with its vast potential of coverage can be used as a very viable tool to impart education to remote and backward areas of the country where dearth of good faculty and library is always a problem. Keeping this in mind, the University Grants Commission (UGC) started in 1984 a programme for tertiary level education through television network coverage entitled Countrywide Classroom (CWCRC). In the beginning, the primary target audience of the programme were undergraduate students, subsequently, 11 and 12th classes were also included; the secondary target audience of the programme were supposed to be common viewers and academics. To bring the programmes within easy reach of target groups, the University Grants Commission provided over 2,000 colleges, located in different parts of the country, with TV sets.

The programmes shown in the countrywide classroom cover all the main disciplines — arts, pure sciences, and social sciences including humanities.

The credo of the telecast is: the broadcast will aim to upgrade, update and enrich the quality of education while extending its reach. They will attempt to overcome the obsolescence of the syllabus and present the latest advances in all fields. The programme will seek to arouse the interest of the viewers, whet their appetite and to broaden their horizons. The aim is to stimulate and not to satiate.

The programmes will not be based on or restricted to any syllabus. Instead, they will seek to provide new insights; inter-relatedness of various disciplines and developmental problems will be highlighted, so that the sum is greater than the whole of the parts.¹

To ensure that the Countrywide Classroom gets a steady supply of programmes adhering to its credo, the UGC has established media centres in 17 universities located in different states in the coun-

try. This is supplemented by educational programmes procured from outside agencies, both indigenous and foreign.

To make the programmes more effective and meaningful, research has been given a prominent place in planning and evaluation. This activity is carried out by trained and experienced social science/communication researchers, specially recruited for this purpose by the media centres to take full advantage of the research input for improving the quality of their production (Mishra 1990).²

Education and Communication

The evaluation of educational television simultaneously touches upon the disciplines of both education and communication. Although education, at least in its formal aspects, is a communication process and much of the process of communication entails acts of education, there are few concepts common to both fields. Similarly, theoretical considerations formulated in one field seldom find their way into the other (Mielke 1972).³

The main purpose of this paper is to discuss briefly the various stages of communication research for improvement of educational aspects of a programme. Two aspects of production research process are discussed with the help of available data on CWCRC telecast of UGC. The two areas are:

- The pre production research (Formative evaluation)
- The post telecast research (Summative evaluation)

Although there are other areas which are also useful for stages of production of programmes, it is not possible to go into the details. The above two stages are discussed with some logical conclusion to help the media practitioners and educators in making good programme (Figure 1).

The Pre Production Research or Formative Evaluation is aimed at providing inputs that will assist in producing programmes, which are of direct relevance and interest to the audience. It assists in defining programme form, content and communica-

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tion strategy which will be most effective in achieving the planned objectives. The types of research activities included at the pre-production stage are — development of audience profiles, assessing needs of the audience, estimating initial level of the audience to determine the level of writing briefs, etc.

Post Telecast Research or Summative Evaluation aims at studying the overall impact of a series of programmes, after the transmission is completed. These studies can be qualitative as well as quantitative in nature.⁴

Formative Evaluation

To know the basic needs and to have a more realistic approach to the situation formative evaluation replaces assumptions and guesswork by interpreted data and empirical evidence. As rightly mentioned by Adkins⁵ formative evaluation is a systematic investigation calculated to produce guidelines leading to the programme form, content and manner of presentation that will most effectively accomplish the defined purposes of a programme. In the most basic terms, decisions concerning how to reach the audience, what needs to serve and how best to achieve message understanding and acceptance can be made on the basis of data derived for the intended audience. Materials can be tailored for the actual users instead of being modelled after programmes produced elsewhere in the world for

people of different backgrounds, needs and preferences (Figure II).

Areas of Formative Evaluation

The areas of formative evaluation which can be used to serve the purpose of effective programme production as defined by Adkins are

- 1 Context analysis
- 2 Needs assessment — identification of needs
- 3 Problem analysis — root causes of needs to be served
- 4 Audience characteristics — nature of target audience
- 5 Delivery system constraints
- 6 Communication contact and strategies — selection of the design and content
- 7 Input and feedback system
- 8 Utilisation factor — determining how the programme content is really being used

Formative Evaluation & CWCR

In the countrywide classroom programme, a good number of individual programmes and for almost all series programmes, some basic formative evaluation research has always been conducted. One such study has been conducted at the media centre at Madras on the programme entitled "Bio-

Figure I Evaluation of ETV Programmes

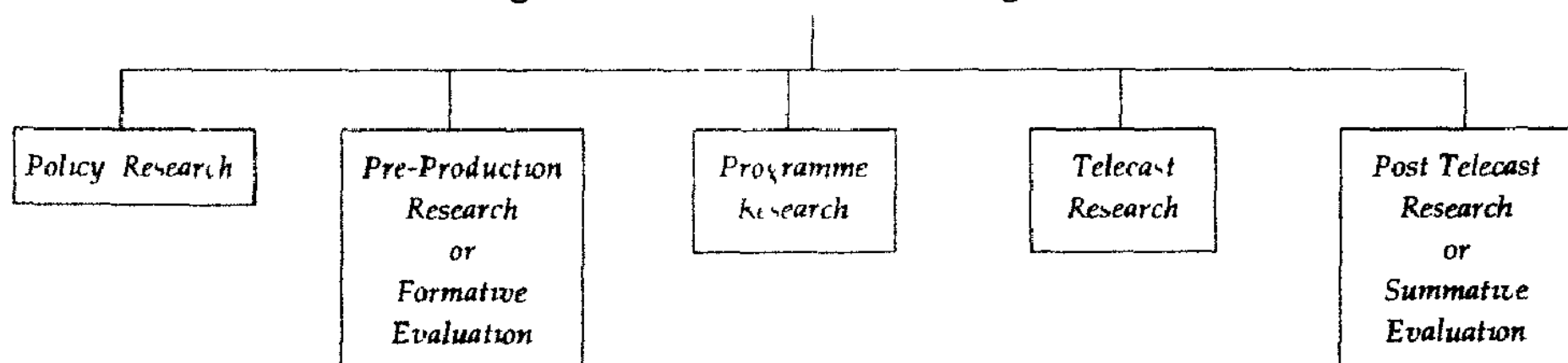
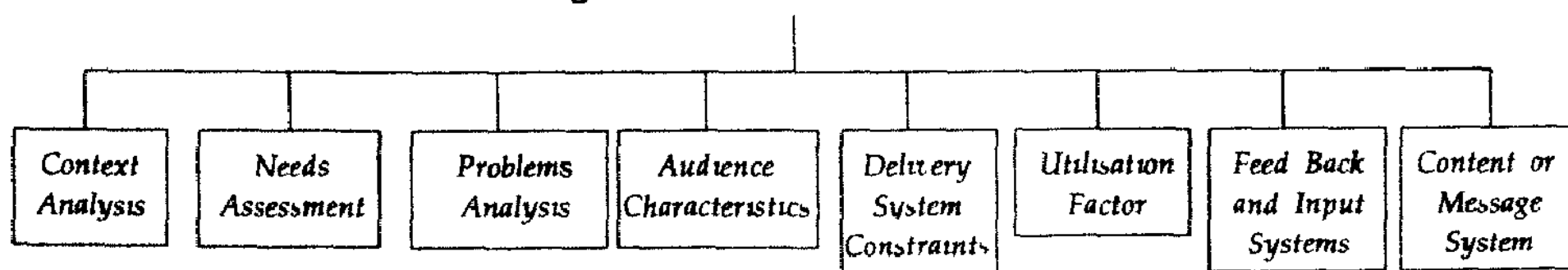


Figure II Formative Evaluation



Environment control of malaria" with the following objectives ⁶

- To make the people aware of the different types of mosquitoes and disease
- To provide insight into the life cycle of malaria
- To provide general type of information on different control measures outlined by the Malaria Research Group
- Spell out the limitation of Bio-Environmental control over the conventional methods
- Suggest preventive steps

Sample Size — 49 students All the respondents are from degree level B Sc I II & III of Biological Science 80% of the sample were of the view that the programme has motivated them to think further, and it may be a good augur for the programme producer But the point has to be noted that around 20% of the science students themselves commented that the programme was badly presented and it has not initiated any level of motivation at all

Feedback

Consortium For Educational Communication, New Delhi, receives more than 2500 letters annually from viewers as feedback to various programmes shown in UGC CWCR telecast (Figure 2) These are regularly content analysed, tabulated and monthly feedback report is sent to all the media centres for improvement of future programmes This report is more qualitative in nature and findings ⁷

The Pursuit — A participatory programme in which problems and questions drawn from various subjects are presented The viewers are requested to send solutions and answers to them ⁸

This programme is a logical outcome of need assessment study conducted by Educational Media Research Centre (EMRC), Hyderabad On the basis of study result, this programme was started in countrywide classroom in November, 1989 on a monthly basis Studies were conducted to improve the content, presentation and duration of the programme The format and duration of the programme was changed The duration got increased to 25 to 30 minutes and format was changed from one anchor person to two anchor persons

Another programme that was started on the

basis of feedback in countrywide classroom is the "Yours Sincerely" On an average more than 300 letters are received at the EMRC, Calcutta and CEC for this programme alone Questions related to scientific enquiry on topics telecast and on various other aspects of all other fields of knowledge are being answered by eminent experts through this programme

Summative Evaluation

This kind of research is required to be conducted to know the impact of the programme Summative evaluation helps in getting feedback on how students react to the programme, what they like and understand, what is difficult why it is difficult, and what the overall effect of the programme is Summative evaluation also helps in establishing the validity of the product Summative research is undertaken to test the validity of a theory or the measurable impact of an educational product or practice Research undertaken in the context of scientific validation is concerned with effects



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which have been hypothesized *a priori* within the framework of broader deductive system, with the use of empirical and statistical procedure defined well enough as to be strictly replicable (at least in principle) and with the highest possible degree of generalizability across situations" (Palmer)⁹

A good number of summative studies have been conducted in India during the last two decades. It was an important component of SITE experiment conducted by ISRO in 1974. These studies have provided new insights into the organisation, management and the motivation as parts of a project like SITE (Agarwal)¹⁰. Here, it is worthwhile to mention that anthropological methods of studying the SITE experiment i.e. holistic study became the most integral part of the experiment. It gave an insight into the various aspects of programmes implementation for future as a qualitative method of summative evaluation (Figure III, p 14)

In higher education Programme like Country-wide Classroom impact studies are very limited. One such study was done by Kumar¹¹ by way of using data collected during November 1991, talkback experiment of UGC. The main objective of the study is to measure the effectiveness of the UGC programmes and the extent to which these programmes increase the existing knowledge of the students. One of the important findings of the study shows that by and large the social science programmes are liked and understood by the students whereas the quality of science programmes require to be improved; therefore the content of these programmes should be chosen more carefully and presented more interestingly, creatively and skillfully so that they are able to inculcate a scientific attitude towards life (Table 1 p 14)

As per this Table programmes can be divided into four categories according to values

- 1 Highly effective programmes
Significantly effective at 0.05 level
 - i) Understanding Cinema
 - ii) Everybody Says I
 - iii) India an Idea
 - iv) Kiradu an oasis in the Desert
 - v) Road Development in India
- 2 Effective Programme
Significantly effective at 0.05 and 0.01 level
 - i) Battle for life

- 3 Acceptable Programmes
Significantly effective at 1 level
 - i) World of Adhesives
 - ii) Leadership in Management
 - iii) Banking
- 4 Ineffective Programmes
Not effective at any level
 - i) Electrical Circuit
 - ii) Economic Growth
 - iii) Soil Erosion

The above points derived from the impact evaluation of CWCR programmes have made one very significant observation that it is not essential that the programmes which have got more visual potential can influence the viewers' learning if they are not otherwise competent. This study is one example of the use of Summative evaluation in UGC telecasts.

[The views expressed in this paper are those of the author and not necessarily of organisations]

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Figure III Summative Evaluation

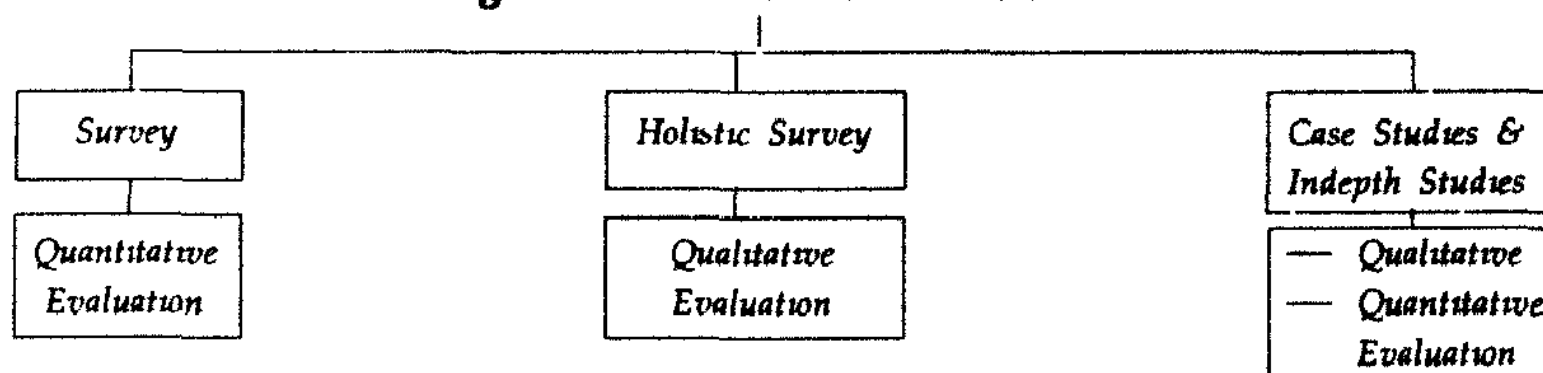


Table 1 Programme Wise Mean, SD and T-Value

S No	Title	Pre-test Mean	Post-test Mean	Diff	Pre test SD	Post test SD	Diff	d t = — S/
1	Understanding Cinema	25.3	47.7	22.4	18.4	21.4	3.2	-8.83
2	Everybody Says I	30.0	51.3	21.3	10.6	14.8	4.2	-7.5
3	India an Idea	30.7	52.0	21.3	13.3	18.0	4.7	-7.2
4	Kiradu	25.9	47.5	21.6	15.5	24.6	9.1	-4.14
5	Roads & Road Dev in India	29.7	50	15.3	17.2	20.9	3.7	-3.26
6	Battle for Life	16.4	25.5	9.1	11.81	16.5	4.7	-2.33
7	World of Adhesives	21.1	25.9	4.8	13.2	13.5	3	-1.49
8	Leadership in Management	43.9	50.9	7.0	22.3	22.6	3	-1.43
9	Banking	43.3	49.3	6.0	13.5	21.7	8.2	-1.40
10	Electrical Circuit	28.6	33.2	4.6	10.7	24.2	13.5	-1.01
11	Economic Growth	30.0	30.5	5	13.7	19.2	5.5	-1
12	Soil Erosion	34.81	28.2	6.6	19.0	23.9	4.9	+1.01

Note — sign indicates significance due to treatment i.e. programme viewing.

+ sign indicates significance due to entry level knowledge

(Adopted from IMPACT of UGC Programmes on Undergraduate AVRC Roorkee 1993)

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be contacted
Feb 28 & 29 1996	National Seminar on Progress in Bibliometric Indicators	To discuss the the significance of literature based science indicators and their applications	Annamalai University	Dr P Pitchappan Department of Library & Information Science Annamalai University Annamalai Nagar 608 002

Teachers' Perception of Large Classes

V B B Sarma*

Teachers, administrators, students and parents have all been complaining about large classes and their effect on the teaching-learning system. Whether we like large classes or not, they have come to stay in India and today large classes are taken for granted. A study 'Teachers' Perception of Large Classes', was conducted to understand the nature of large classes, the difficulties they bring into the teaching-learning system, the practices teachers have been following to overcome at least some of the problems, the personal and academic factors of teachers in relation to their perception of large classes and the solutions needed to solve the problem of large classes.

Objectives The investigation aimed at finding answers to the following questions

- 1) What is the nature of a large class?
- 2) What are the academic and administrative difficulties faced by the teachers of large classes?
- 3) What management techniques do teachers have to employ in large classes?
- 4) What are some of the personal and academic factors of the teachers that can influence their perception of large classes?
- 5) How can we make teaching in large classes effective?

Tool A questionnaire containing nineteen questions constituted the tool for the investigation. The questions centred around the objectives of the investigation.

Sample Sixty teachers constituted the sample for the study. Of them, 17 were school teachers and 43 college teachers. The investigator used 'quota sampling technique' to get a representative sample of the population, both in terms of types of institution and the subjects they taught.

Summary of the main findings

The following conclusions are drawn on the basis of the analysis of the responses. The conclusions are presented in the same order as the objectives

have been stated

1 Concerning the nature of large classes it is revealed that

- a) a large class can consist of any number of students, large or small, but students are of unequal abilities,
- b) traditionally a student strength of above 40 with unequal abilities is considered large

2 Concerning the academic and administrative difficulties faced by the teachers of large classes, the study revealed that

- a) most teachers both school (65%) and college (53%), have difficulty in teaching large classes,
- b) both school (53%) and college (51%) teachers identify regular maintenance and checking individual attendance, progress in learning and correction of assignments as the first casualty because of the large class size. While school teachers (35.5%) think that teaching and activating how to think critically, observe carefully and live democratically are the important activities that could not be carried out satisfactorily, college teachers (35%) feel that 'transferring information as in explaining the meaning of a poem' is the important activity that could not be carried out satisfactorily. However, both the categories of teachers (school 29.5%, college 28%) agree that the third important activity they could not satisfactorily carry out is 'developing cognitive abilities like discrimination, application, reasoning and critical thinking,
- c) the strength of the teachers who stated that they did not experience difficulty in teaching their subject to large classes is negligible — 1 out of 17 school teachers and 4 out of 43 college teachers,
- d) the habit of spoon feeding on the part of teachers and total dependence on the part of learners remains first in both school (41%) and college (51%) teachers. 'Rigid timetable' and the popular belief that 'large classes do not matter in teaching effectively', carry the same rating within their own category of respondents (school 23.5% and 23.5%, college

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42% and 42%) but occupy third place in the school teachers' rating and second place in the college teachers' rating. The 'fixed classroom seating arrangement' which is rated second in importance by the school teachers (35.5%) is rated third by the college teachers (39.5%).

3 With regard to the management techniques employed by the teachers of large classes, the investigation brings out that the management techniques used by these two categories of teachers appear to be need-based and suitable to their groups of learners. The school teachers (64.5%) involving children 'practice group activity as the most effective measure to overcome the problems of large classes'. This is followed by 'conducting remedial classes' (41%) and making learning an individual activity (29.5%). But the college teachers (39.5%) with their grown up students and difficult subject matter, organize 'remedial classes' as the most effective measure to overcome large class problems. This is followed by 'making learning an individual activity' (35%). A sizeable number of college teachers (23.5%) state that their subject does not require a small class. The use of these old techniques and a suggestion that 'teaching should be made at the level of the average student' shows that the teachers are not well equipped to manage large class teaching.

4 With regard to the personal and academic factors of the teachers which can influence their perception of large classes, the research revealed that their own experience of studying in large classes, and their own experience in teaching large classes contributed to their opinions on large class problems. This is clear from the following data:

A majority of the teachers (65% of school teachers and 81% of college teachers) have experienced large classes. The few who did not experience them (school 35.5% and college 18.5%) had their studies at least ten to twenty years ago. About 91%, both of school and college teachers who had experienced large classes agreed that they felt inconvenience in learning in large classes. A majority of teachers (about 80%) school and college inclusive, are not willing to teach large classes. In spite of the strength of a class varying from 39 to 85, in the schools and, from 55 to 140, in the colleges, results in the schools and colleges of this sample are reported to be quite satisfactory. However, those few who spoke of poor results considered large classes as a potential cause for comparatively poor results in their subjects.

There is practically no difference in the three

reasons given for the success of some private schools/colleges and tutorials in spite of their large classes. However, the first reason i.e. 'the fairly good socio-economic background and good intelligence of the students' cited by the school teachers (88%) turns out to be the second in the order of preference for the college teachers (67%). Similarly, the first reason i.e. 'strictness of the management forcing both the teacher and the pupil to put in extra effort to maintain their stay' cited first by the college teachers (74.5%) turns out to be the second in the order of preference given by the school teachers (76.5%). There is no change in the preference given to the third item. Both the groups (school 47%, college 58%) stated 'the interest and commitment of the learner' as the reason for the success of such institutions.

5 With regard to the ways and means for making teaching more effective in large classes, the analysis revealed that:

15 out of 17 school teachers feel that some new methods and techniques are needed to make teaching in large classes more effective. While 41 out of 43 college teachers feel that new methods are needed, only 38 feel that new techniques are needed to make teaching large classes more effective. College teachers suggest the use of streaming, tutorials, audio-video aids, handouts for preparation, group activity, self-learning methods, and learner activity for better teaching/learning in large classes.

Curricular Implications of Large Classes

Large classes influence curricular preparation in many ways. Some perceptible changes which have to be made in the curriculum for large classes are:

1 Curriculum will have to be largely activity oriented, disburdening itself of the undesired theoretical husk with facilities for each individual to pursue his own work. Further, the curriculum should suggest, separately, specific areas for individual study and for large class lectures.

2 The traditional form of writing textbooks will have to yield place to self-learning and activity-based modules and programmed materials.

3 The traditional form of lecturing will have to give way to more systematized brief lectures with pre-specified objectives and demonstrations.

4 Evaluation will have to be continuous and objective based and include both theory and practical.

Building a Non-violent Society

The 42nd Convocation of the Gujarat Vidyapith was held recently. Speaking of the goals of the Vidyapith, Prof. Ramlal Parikh, Vice-Chancellor, said "The objectives framed under the guidance of the father of the nation, Mahatma Gandhi are not meant for this Vidyapith only but are ways to achieve the aim of building a non-violent society in the entire globe. It is a national educational programme meant for not only our country, but for the entire world." Excerpts

The objectives framed under the guidance of the father of the nation, Mahatma Gandhi are not meant for this Vidyapith only but are ways to achieve the aim of building a non-violent society in the entire globe. It is a national educational programme meant for not only our country, but for the entire world. For character-building and to become self-reliant to impart knowledge of all religions, daily congregation through mass prayers and mass spinning for dignity of productive work, dedication to truth and non-violence, mother-tongue as medium of instruction at all levels and in all subjects, compulsory learning of Hindi as a national language, equal significance to occupational and cognitive learning, training in such productive skills which will prove useful for rural life and society, vow to always wear *Khadi*, obligatory place of social service at all levels of learning and all disciplines and to put utmost emphasis to the syllabus to the needs of the rural people — all these components are woven in the management, organisation and the entire educational system of the Gujarat Vidyapith.

No other educational institution had the fortune of getting Mahatma Gandhi's direct guidance except the Gujarat Vidyapith

which has been a singular honour in this matter. Though he is not living today, the memories of his activities in the Vidyapith's campus and his teachings are always with us. In spite of working against the currents of urbanised and westernised life-styles, we at the Gujarat Vidyapith, very firmly and with all dedication constantly strive to keep alive the system of education and way of life according to the teachings and ideologies given by Gandhiji as a heritage to us. In our efforts to implement such a unique programme, we all along received abundant cooperation and good wishes from all Gandhians, educationists, our teachers as well as our students. The testimony of the contribution of the Gujarat Vidyapith towards all-round upliftment of the rural society of Gujarat can be seen in large number of *Ashram Shalas*, post-basic schools, *Adhyayan Mandirs*, Gram Vidyapiths, *Sarvodaya* projects, social service centres, rural development centres, Adult-education campaigns, etc. In all these programmes scores of graduates trained by the Gujarat Vidyapith have been involved. In hundreds of villages throughout the Gujarat State, Vidyapith's trained graduates are engaged in accelerating the work related to the uplift of the rural people.

At the Gujarat Vidyapith, right up to Ph.D. level of higher education, facilities for carrying out teaching, research and extension work through the medium of mother-tongue have been developed. Also for students from any part of the country, provision has been made to write thesis in any of the Indian languages approved in the Indian Constitution. Due to this, students from States other than Gujarat have been joining Gujarat Vidyapith for pursuing higher education. Nearly seven Tamil speaking students from Madurai University enrolled in Peace Research Centre have been able to complete their higher studies and research.

With a view to combine productive work and social service together, Agriculture-cum-Dairy and *Ambar Charkha* and soap-making subjects at Sadra Gram Sewa Mahavidyalaya as well as Home Science and tailoring science subjects at Randheja's Mahila Gram Sewa Mahavidyalaya have been incorporated as integral part of the courses of bachelor degree in three years course after plus-two stage. The fundamental objects of the nationalist education system evolved by Mahatma Gandhi through the Gujarat Vidyapith are now getting universal acceptance from the educationists of the country. But even then, the obstacles in the way of bringing meaningful changes in the colonial educational system of the country have not lessened adequately. Particularly, measures for using mother-tongue as medium of instruction at all levels of higher education and integration of productive work and social service as an integral part of higher education system as such are not coming into operation though the-

oretically these are widely recognised as sound educational principle. But this year, the University Grants Commission has taken a significant decision to incorporate vocational courses as an integral part of the first degree courses. In both the Gram Sewa Mahavidyalayas of the Gujarat Vidyapith, five vocational courses such as Archaeology & Museology, Computer Applications, Food & Nutrition, Office-Management and Electronics have been started. We have accepted these of vocational courses as an integral part of our higher education system in line with our basic philosophy of equal importance & productive vocational learning and cognitive process. University Grants Commission have introduced such vocational courses in more than 100 colleges during the current academic year. This is an important step which gives a new direction to the higher education system of the nation. It is a welcome departure from mere book-centred system of learning and teaching in higher education. In this way, the system of basic education in which principles of combining subjects of productive work and social service & community life are getting incorporated in the system. It is bound to bring the desirable impact on the high-school educational system also though the efforts of UGC are on a limited scale. Nevertheless, it is a signal of good beginning.

Now, about important happenings after the last convocation.

(1) Vidyapith organised 12 NSS camps in which 1,100 students and teachers and 125 local boys and girls participated. On the basis of this work done during the last 5 years the Gujarat

Regional Committee of the NSS has recommended to Government of India to declare the Gujarat Vidyapith as the best University for NSS work.

(2) A seminar was organised on the topic of 'Gandhiji in the Changing Contemporary World' in which 31 delegates from the country as well as some from abroad also participated.

For propagating Gandhian Thoughts in foreign countries, the 1994 Shri Jamnalal Bajaj award was received by Shrimati Gendog Bagus Oka of Bali (Indonesia). She stayed in Gujarat Vidyapith and addressed our students. She participated in this Seminar also.

A Seminar was organised during 2nd to 4th October, 1995 on the subject of 'United Nations at 50'. This Seminar was inaugurated by internationally reputed scholar on Peace-Research, Prof Johan Galtung. 32 delegates from the country as well as from abroad participated in this Seminar at which 12 papers were presented.

(3) At Randheja village of Gandhinagar district, a Krishi Vigyan Kendra is in existence since last 17 years. Another similar Kendra has been recently started at Ambheti village in the tribal area of South Gujarat.

(4) The Adult Education Training & Research Centre's work has been steadily growing. As a result of the activities of this Centre, Adult Education Campaigns have been operationalized in all districts of Gujarat State. Under the auspices of this Centre, a fortnightly journal *Loktan* is being published for the use of neo-literates. It is being subscribed by 7,580 persons.

(5) Keeping in view the swift expansion in rural development programmes, co-operative societies' activities, Dairy programmes, etc and their needs of middle-level managerial cadre, a two years course of Master of Rural Management has been running at village Sadra in the campus of Panchayati Raj Training Centre of the Gujarat Vidyapith. This course has entered into its seventh year. At this very Centre, a Computer Centre, instrumentation centre for repairs of machines and Gobar Gas have been installed as a part of vocational training in science subjects. 50 youths from neighbouring villages are being trained in the computer applications.

(6) Training in Physical education constitute an essential objective of the Gujarat Vidyapith. Keeping this in view a three-year graduate course in Physical Education and two-year Postgraduate course in Physical Education has been started at Sadra Campus. A modern gymnastic hall as well as facilities for out-door games have been created.

(7) Under the scheme of Indian Language & Culture Bhavan, considerable progress has been made to provide facilities to learn all regional Indian languages under one roof. Till now courses in Kannad, Malayalam, Tamil, Telugu, Marathi and Punjabi, Kashmiri & Sindhi languages have been started with the help and assistance of the concerned State Governments. During the current year, courses in culture & language of Madhya Pradesh are to be started with the help and assistance of the Madhya Pradesh Govt. 30 students have taken various courses during the current academic session.

(8) To assist the students in getting employment, an Employment Guidance & Counselling Unit is working. 125 students were informed regarding vacant positions. To 175 students, training was imparted in how to face interviews. A workshop was also organised to develop interest in the self-employment and entrepreneurial activities.

(9) Altogether 2,600 students in the different campuses of the Gujarat Vidyapith are receiving education at primary, secondary and higher education levels. Apart from this, two and half lakh students appeared at the examination of Hindi language conducted by the Hindi Bhavan. As a part of Gandhi's 125th birth anniversary celebrations, 92,000 students appeared in the examination in the subject of 'Gandhi's Autobiography'. Further, every year two thousand students appear in the examination on the subject of Gita. This Centre also conducts courses in Hindi type-writing.

(10) In the memory of fifth son of Gandhi, Late Jamnalal Bajaj and on the donation given by his son Shri Ramakrishna Bajaj, Jamnalal Bajaj Institute of Studies in Ahimsa is being developed as an Ahimsa Shodh Bhavan by constructing a new Bhavan which is nearing completion. The construction of a building for the Janakidevi Bajaj Yoga and Naturopathy is also in progress on the banks of Sabarmati river at village Sadra.

(11) One year postgraduate diploma course in Computer Education through the medium of Gujarati and Hindi languages as well as two year course in Master Computer Application are being

conducted. For the first time, a book on Computer language in Gujarati language has been published by the Gujarat Vidyapith. The author of this work is Dr Dilip Ahalpara. Another book titled *D-base three plus* will be published soon.

(12) First batch of students have completed the postgraduate course in Buddhist Philosophy. An International Centre of Jain Studies has also been started. M Phil and Ph D courses in this subject are being taught.

(13) The Gujarat Vidyapith library is one of the biggest libraries of the country. It has nearly four and half lakhs titles. The entire acquisition of books & journals and services of the library have been fully computerised.

(14) The Tribal Research and Training Institute of the Gujarat Vidyapith carries out research projects covering various topics related to tribal life & culture and tribal development. During the current year, the Institute has

completed 10 research projects. Further, it has conducted 5 training programmes. The Institute's museum was visited by 1600 persons — local, foreigners as well as students of educational institution.

(15) Basic Education Teachers Training College as well as Hindi Teachers Training college run training and refresher courses. During the current year 350 students have been admitted in different courses.

(16) The publication department has published 10 books and reprint of 14 books have also been published. It has also reprinted the *Sarathi Gujarati Jodni Kosh* which was not available for a long time and with this reprint, it has been made available to students, teachers & general public.

At the convocation degrees, diplomas and certificates were awarded to 375 students who had successfully passed the different examinations conducted by the Gujarat Vidyapith.

University News

Wishes

ITS READERS

A

Happy New Year

1996

SPREADSHEET

WORLD POPULATION DATA SHEET 1995

	Population mid 1994 (millions)	Birth Rate per 1000 Pop.	Death Rate per 1000 Pop.	Natural Increase (annual %)	Doubling Time in years at Current Rate	Projected Population (millions)		Infant Mortality Rate	Total Fertility Rate	% Age		Life Expectancy at Birth (years)			% Urban	% Married Women Using Contraception		per Capita GNP 1993 (US\$)
						2010	2025			<14	64+	T	M	F		Total	Modern	
WORLD	5,702	24	9	1.5	45	7,024	8,312	62	4.1	32	6	66	64	68	43	58	49	\$4,500
MORE DEVELOPED	1,169	12	10	0.2	432	1,232	1,271	10	1.6	20	13	74	70	78	74	-	52	17,270
LESS DEVELOPED	4,533	28	9	1.9	36	5,791	7,041	67	3.5	35	5	64	62	65	35	55	49	1,030
AFRICA	720	41	13	2.8	24	1,069	1,510	90	5.8	45	3	55	53	56	31	22	17	660
SUB-SAHARAN AFRICA	586	44	14	3.0	23	892	1,290	95	6.2	46	3	52	51	54	27	15	11	560
NORTHERN AFRICA	162	32	8	2.4	29	219	279	63	4.4	41	3	64	63	65	45	39	35	1,040
WESTERN AFRICA	199	45	14	3.1	22	311	467	86	6.4	46	3	53	52	55	23	8	4	370
EASTERN AFRICA	226	46	15	3.0	23	345	491	106	6.4	47	3	50	48	52	21	17	12	210
MIDDLE AFRICA	83	46	16	2.9	24	127	191	107	6.3	46	3	49	47	51	33	-	-	-
SOUTHERN AFRICA	50	31	8	2.3	30	67	83	49	4.2	38	4	65	62	67	59	50	48	2,720
NORTH AMERICA	293	15	9	0.7	105	334	375	8	2.0	22	13	76	72	79	75	71	66	24,340
LATIN AMERICA AND THE CARIBBEAN	481	26	7	1.9	36	601	706	44	3.1	34	5	69	66	72	70	61	51	3,040
CENTRAL AMERICA	126	29	5	2.3	30	163	196	37	3.5	37	4	71	68	74	65	60	51	3,090
CARIBBEAN	36	23	8	1.5	46	43	50	39	2.9	31	7	70	67	72	60	-	-	-
SOUTH AMERICA	319	25	7	1.8	38	395	460	47	3.0	33	5	68	65	71	73	64	51	3,020
ASIA	3,451	24	8	1.7	42	4,242	4,939	62	2.9	33	5	65	64	67	33	62	55	1,980
WESTERN ASIA	168	31	7	2.4	29	242	329	51	4.1	39	4	67	65	69	58	-	-	-
SOUTH CENTRAL ASIA	1,355	31	10	2.1	33	1,772	2,138	79	3.8	38	4	60	60	61	27	39	30	420
SOUTH EAST ASIA	485	26	8	1.9	37	601	704	53	3.2	37	4	64	62	66	31	51	44	1,070
EAST ASIA	1,442	17	6	1.0	66	1,628	1,768	40	1.8	26	7	70	68	72	35	87	84	3,750
EUROPE	729	11	12	-0.1	-	743	743	11	1.5	20	13	73	68	77	72	-	45	11,870
NORTHERN EUROPE	94	13	11	0.2	443	97	99	7	1.8	20	15	76	73	79	85	73	66	18,020
WESTERN EUROPE	181	11	10	0.1	741	187	184	6	1.5	18	15	77	73	80	81	77	69	23,310
EASTERN EUROPE	310	10	14	-0.3	-	315	320	17	1.5	22	12	68	62	73	68	-	22	2,180
SOUTHERN EUROPE	144	11	9	0.1	516	144	139	11	1.4	18	14	76	73	79	60	-	-	14,720
OCEANIA	28	19	8	1.2	60	34	39	24	2.5	26	10	73	71	76	71	65	-	13,540

Source: Population Reference Bureau, Inc. 1875 Connecticut Ave. NW Suite 520 Washington, DC 20009 USA

CAMPUS NEWS

National Workshop on Women's Education

The Vinoba Bhave University, Hazaribag, recently organised a two-day National Workshop on Women's Education at S S L N T Women's College, Dhanbad. Eminent educationists, administrators, women activists and researchers drawn from all over the country participated in the Workshop.

Inaugurating the Workshop, Dr (Ms) Vinodini Terway, Vice-Chancellor of the University, expressed the view that even when we were at the threshold of the 21st century, our society still discriminated against women in matters of their rights and privileges and prevented them from participating in the processes of National and societal progress. She observed that women everywhere suffered disproportionately in all walks of life. Quoting extensively from Shaw, Gandhi and other thinkers she claimed, that an awareness regarding the claims of women to equity in fundamental rights and balanced national development must be created. The universities could not afford to remain indifferent to the sordid socio-cultural realities relegating women to inferior status, she observed and strongly pleaded for introducing teaching and research on Women's Studies in the universities for ushering attitudinal change in the society in relation to nearly fifty per cent of the total population of mankind.

The Workshop was divided into three sections — (1) Women and Development, (2) Trends of Teaching and Research in Women's Studies, and (3) Planning for

the Teaching of Women's Studies. Altogether 30 papers were presented.

After detailed deliberations, the following resolutions were adopted:

1. Vinoba Bhave University, Hazaribag, should introduce Women's Studies at the first instance, as an alternative special paper at the postgraduate level of traditional disciplines in the university with a view to creating awareness among university graduates regarding the status and roles of women and their claims to equity, fundamental rights and balanced national development.
2. A full-fledged and independent Postgraduate Department of Women's Studies be opened for (a) conducting research related to women's matters, (b) general instructions in carefully programmed new discipline of Women's Studies, and (c) socially oriented action and extension services.
3. The proposed Department should interact and collaborate with Government and NGO agencies in developing study and research in the areas of sexual discrimination in matters of economic development, employment, immigration, health care, human rights and other diverse issues.
4. The Department should also exchange views with religious

and cultural agencies with a view to mitigating the religious-cultural obstacles and constraints in the development of women, and

5. The proposed Department, before taking up actual teaching work, should make adequate preparation with regard to reading-materials, library and faculty, and, in the meanwhile, should perform as the Centre for Women's Education and Development as obtaining in other universities of the country.

Seminar on Pharmacy Education

The All India Council for Technical Education (AICTE) has geared up its machinery by setting up the National Board of Accreditation as a step towards revolutionising the entire gamut of technical education including pharmacy in the country, said Prof. G. J. V. Jagannadha Raju, Chairman of A.P. State Council for Higher Education. He was inaugurating the two-day AICTE sponsored Regional Seminar on Planning and Management of Pharmacy Education in India organised by the University College of Pharmaceutical Sciences of Kakatiya University in Warangal recently.

Prof. Raju said that the AICTE had constituted an All India Board of Pharmacy in 1994 to review the norms for establishing pharmacy institutions, to effect curricular changes and monitor the progress of research, etc in order to maintain high academic

standards in pharmacy education

He said that the All India Board of Pharmacy held several workshops to create awareness and outline the procedures to be adopted for accreditation detailing the criteria for assignment of grades

Prof Y Vaikuntham, Vice-Chancellor of Kakatiya University, who presided, called upon the Indian pharmacists to keep abreast of the global technological advancement and facilitate the manufacture and marketing of life-saving drugs at cheaper rates to reach the rural masses through the effective institution-industry interaction

He complimented the faculty of pharmacy for maintaining high academic standards and developing the University College of Pharmaceutical Sciences into one of the prestigious institutions in teaching and research at the national level

Prof C K Kokate acting President of the Pharmacy Council of India and senior faculty member of Kakatiya University, in his keynote address emphasised the need to update the curriculum and to maintain uniform standards

Delivering the valedictory address Mr Kadiam Srihari State Minister for Social Welfare, said, There is need to establish effective linkages between the academic institutions and the drug industry to maintain high academic standards in pharmacy education and to ensure cost effective production of quality drugs

Expressing concern over the exploitation of common man with spurious and adulterated drugs,

the minister called upon the pharmacists to educate the rural masses by organising popular lectures on the use and efficacy of drugs

Summing up the two-day proceedings of the seminar, Prof C K Kokate said that the faculty of pharmacy of Kakatiya University could serve the community better if they were allowed to offer consultancy services for which a proposal had already been formulated by the college

Speaking on the occasion, Prof Y Vaikuntham assured the faculty of pharmacy that a panel to work out the modalities of consultancy services by the faculty would be set up soon. Once the procedure was finalised, it would go a long way in serving, at once, the social needs and strengthening the department, Prof Vaikuntham felt

Prof Vaikuntham also suggested that it would be feasible for the faculty to adopt a couple of villages and provide them the needful awareness of drugs and their proper use through popular lectures etc

Over 60 experts representing different universities, industries and research laboratories participated in the seminar

Instt for Studies & Research in Non Violence

Ahimsa Shodh Bhavan (Shri Jamanalal Bajaj Institute of Studies & Research in Non-Violence) was recently inaugurated by President Dr Shankar Dayal Sharma at the Gujarat Vidyapith

Vidyapith Vice-Chancellor Prof Ramlal Parikh said that the institute was a culmination of a small experiment in 1971 when a

peace research centre was founded in Vidyapith. As Chancellor, late Morarjibhai Desai had often spoken of the need to expand the scope of the institute to include non-violence as a subject of study and research

In 1990, Mr Ramkrishna Bajaj, son of late Jamanlal Bajaj, donated funds. As a result, Gandhi Institute of Studies at Vardha, Institute of Science and Spiritualism in Bangalore, and Ahimsa Shodh Bhavan in Ahmedabad came about

The institute would offer a doctorate on ahimsa. Though it had been taught by religions, saints and religious institutions, ahimsa had never been included in the syllabus for higher studies, Prof Parikh said

Besides, the institute would offer a postgraduate diploma, an M A and post-doctoral research courses in Gandhian Thought. What is more, the institute will offer a three-month certificate course on Indian culture, Gandhian thought and peace studies for students from abroad

The institute would publish books on non-violence and have a separate library of such books. It would organise exhibition of books on the champions of non-violence, social reforms and saints and seminars and conferences on ahimsa

Besides, the institute would publish poetry collections on non-violence. Also, it would organise a painting exhibition on non-violence. *Ahimsa Vikas Yatra* (Progress of Ahimsa), which would include works on influence of ahimsa since the times of Dhruva and Prahlad to Gandhiji and Martin Luther King Jr. Since the institution was beginning on Gandhiji's

125th birth anniversary, 125 ahimsa mandals would be formed in schools and colleges, Prof Parikh said

As 20th century had witnessed an unprecedented violence everywhere, there was a need to mobilise world-wide support to begin the next century based on non violence, Prof Parikh said. For this the institute would urge the United Nations to declare 1996 the Year of Non-violence. Also, it would request the UN to declare the next decade the Decade of Non-violence and the 21st century the Century of Non-violence.

The institute would publish a three-volume bilingual encyclopaedia on non-violence in English and Gujarati which would have a wide collection of articles by past and present champions of non-violence.

Ph D in Devotional Literature

The Osmania University has started Ph D course in Devotional Literature at the Research Foundation for Devotional Literary Studies. The Institute is arranging research in devotional literature of all the Indian languages.

A candidate who is M A in any subject in Faculty of Arts and is eligible for Admission to Ph D Course in the Osmania University, can be admitted at the Centre

In the Academic year 1994-95 four candidates had been admitted with the following topics of research (1) Concept of Bhakti (Devotion & Love) in the Holy Bible, (2) Narrative Techniques of Valmiki Ramayan, (3) Golconda Ke Sahityakaron Per Sufi Mat Ka Prabhav (Impact of Sufism on the

Writers of Golconda) and (4) Ranganath — Ekoji Ramayanam Lo Tulnatmak Parisheelan (Comparative study of Ranganath & Ekoji Ramayan)

Book on Quality Assurance Released

"The dependence on government by the universities needs to be replaced by the capacity of these institutions to attract students with useful and relevant courses also grounded in Indian culture and values. Higher education in India should meet the challenge of global competition by utilising technology for dissemination. This was stated by the Governor of Andhra Pradesh, Sri Krishan Kant, while releasing the book on Quality Assurance in Distance Education authored by the Faculty of Dr B R Ambedkar Open University. He said that the Open University should take up the challenge of meeting new horizons for field workers and others (who may not need theoretical educational concepts), and development of new skill so that they could improve their work situations. He preferred keeping pace with modern knowledge without sacrificing indigenous cultural values.

Sri Basheeruddin Babu Khan, Minister for Higher Education, Government of Andhra Pradesh, said that educational scenario in Andhra Pradesh needed revamping and in this process Dr B R Ambedkar Open University, which was the first Open University in the country established in 1982, could play a leading role. He commended the efforts of the Vice-Chancellor and the Faculty for sustaining quality at all levels and said that such high standards should be impart-

ed through languages of the state i.e., Telugu and Urdu to backward communities and to remote regions thus catering to the aspirations of women, semi-skilled workers, farmers, petty traders, etc.

Prof S Basuruddin, Vice-Chancellor of the University, said that book on the subject of quality assurance was in tune with stress on meeting standards of higher education as emphasised by the University Grants Commission and the newly founded National Assessment and Accreditation Council (NAAC). He said that the Open University was in the process of offering such new courses as P G Diplomas in Business Finance, Marketing Management, Writing for the Media, Environmental Studies and Mushroom Cultivation.

Dr (Mrs) A Vanajakshi, State Secretary for Higher Education, suggested that the eligibility test for non-formal stream of admission to the First Year of the Open University could be stiffer and broad based so that candidates with the right background were admitted and that the Open University degrees were rated as good, if not better, than the conventional university degrees/courses. She pleaded that there was need for reformulation of coursework, examination system, assessment and credit systems.

Prof C Subba Rao, Vice-Chairman, A P State Council of Higher Education, said that internalisation of values was more important than external imposition of quality checks for improving the content of course material and student services in distance learning.

Prof M Satyanarayana Rao, Editor of the volume, cited that the theme of the book was based on the Prime Minister's inaugural address of the new campus wherein he said that while Open Universities had been established, it was now necessary to strive for constant upliftment of the standards of the institution

Peace Varsity Planned

A peace university, which will set up standards for universal peace, is proposed to be established at Pune by Claes Nobel, descendent of Nobel Prize creator Alfred Nobel

The great-grand nephew of Mr Alfred Nobel, who was recently on a visit to India, said that no country other than India, which has been influenced by two most powerful religions — Hinduism and Buddhism — was found best suited for setting up of such a university

Mr Claes Nobel, who heads United Earth, a non-profit, non-governmental organisation which in turn recognises and promotes environmental leadership and humanitarian excellence worldwide said that the idea behind setting up of the peace university was to train persons, set up standards and find solutions to ethnic, religious, political, ecological and social problems

He said the curricula for the classes would be based on values in life. The reference point would be based on the same principles of United Earth which focused on global efforts in forging collective and sustainable future growth

"We have not worked out the syllabus for this peace university so far, but it will mostly address

itself to find a solution to the technological process, which affects both humanity and nature. We want to look for generals, politicians and educationists, who will work as ambassadors for peace and not destruction', he added

The doors of the university — which would be from preliminary to postgraduate level — would remain open for all nationals on the globe. With India expected to turn into the most populated country in the world before the turn of this century, and with its highly cultural and spiritual values "we found it as the best suited nation to work for spread of peace on the troubled earth", he said

Explaining the purpose of his visit to India, Mr Claes Nobel said he was on a mission looking for "leadership and partnership" in the peace university and United Earth programmes

World AIDS Day

The UGC-UNFPA Project on Population Education, University of Delhi in collaboration with Care India, organised a one day Programme on World AIDS Day i.e. 1st December, 1995. The programme included World AIDS WALK and panel discussion on 'Role of Youth in sharing the responsibilities on HIV AIDS in India'

The UGC Chairperson, Prof (Ms) Armaity Desai, in project progress review meeting of UGC-UNFPA Project on Population Education, emphasized inter-sectoral project co-ordination to fulfil the objectives of population, development and the new emerging areas like AIDS, Drug-Abuse, etc. Mr Wasim Zaman, Country-

Director also stressed the need to co-ordinate various similar activities on population education

Prof V R Mehta, Vice-Chancellor of Delhi University, in his message, welcomed population education resource centre for mobilising the youth opinion for education and awareness. Prof Abad Ahmad, Pro-Vice Chancellor, said that announcement of a Diploma Course on Population Education and a Certificate Course on Population, Development and AIDS Education was a welcome step. Prof Abhai Man Singh, Director, South Campus, welcomed the discussion on role of youth to mobilise large scale students for AIDS education and awareness. He congratulated the PERC staff for taking several steps to institutionalise population education in higher education

The Chairperson of Care India, Dr P D Nayyar, Dr O P Malik of UGC and the representatives of NAZ Foundation participated in the panel discussion on Role of Youth in sharing responsibility on HIV/AIDS organised for the students and faculty members. Welcoming the delegates and the representatives of Care India Mr Rajesh, Project Officer, said that the PERC had planned a Certificate Course on Population, Development and AIDS Education and Diploma in population education in which AIDS Education would be a new component

Prof K R Sharma, Head and Dean, Faculty of Social Sciences, who moderated the panel discussion, said that the PERC had initiated university, college and the community level activities. Dr Sen Gupta, National AIDS Control Organisation (NACO) said that Thailand, Myanmar and India were the three countries at risk

in South East Asia. The youth in the age group 20-45 were affected and were at risk in maximum number.

Ms Anjali Gopalan of NAZ Foundation said that she and her organisation had concentrated more on sexuality. It was not good to say that AIDS was a heterosexual infection rather it was a sexual infection. Youth should accept the reality on sexuality. Proper information on sexuality had been the key to success, she maintained.

Dr P D Nayyar, Counsellor of Helpline Counselling Services, stressed on Sex Education at every level in graded manner. He shared the experiences of UGC-UNFPA sponsored Helpline Counselling Services and population youth and AIDS education series in Delhi University, Jamia-Milia Islamia Hostels, popularly known as post-dinner series. He stressed on AIDS and sexuality as twin-affairs.

Dr O P Malik said that UGC was concerned about gradual increase in HIV/AIDS cases in South-East Asia and in India. He stressed the development of self-study course on AIDS education. He lauded the experiences of Helpline Counselling Services started under UGC-UNFPA project. He said that we should support Adolescent Education at school level and family life education at higher education level.

Dr Susma Yadav shared her experiences based on community level services on AIDS and sexuality. She stressed information and education campaign at every level.

Prof K R Sharma briefed on the focal points raised in the

panel discussions and suggested several follow-up actions under population education resource centre of the department.

Symposium on Indian Capital Market

"In spite of phenomenal growth in the capital market over the years, the exploitation of the common man has not ceased," said Prof Y Vaikuntham, Vice-Chancellor of Kakatiya University, while inaugurating a one-day symposium on 'Recent Trends in Indian Capital Market' organised by the Department of Commerce & Business Management of Kakatiya University in Warangal recently.

Prof Vaikuntham said the institutions, instruments and players in the capital market should protect the interests of the common man and explore ways to generate self-employment and specialised occupations. He called upon the people to be vigilant and check the unscrupulous ones from controlling the capital market to end the unfair exploitation.

In his presidential address, Prof A Shankaraian, a senior faculty member, lamented the inability of regulatory mechanism to exercise proper control over the fraudulent practices adopted by the brokers and members in the capital market. He therefore suggested that necessary changes should be introduced in the legal framework to curb these nefarious activities.

Prof K Rajeshwar Rao, Convener of the symposium, in his keynote address said that the capital market in India had undergone remarkable transformation in its structure since its nascent

stage in early 1950s and added that the fresh capital mobilised on this market had reached Rs 50 to 60 thousand crores by 1995. Following the sea-change in the capital market over a period of time, a number of institutional, regulatory and economic weaknesses had made their entry into it, affecting the rapid growth and structure of the capital market. Prof Rao suggested a number of reforms such as transactions tax, credit capital account tax, circuit-progress etc, for its effective functioning.

PG Diploma in Energy Conservation and Management

The Department of USIC & Instrumentation of Sri Krishna-devaraya University, Anantapur, proposes to start, in collaboration with the Society for Conservation of Energy in Andhra Pradesh (Energy & Forests Department, Govt of A P), a Correspondence Course exclusively for Working Engineers leading to a "Postgraduate Diploma in Energy Conservation and Management".

The objective of the Course is to develop the much required expertise in the various aspects of Energy Conservation & Management related to different industrial sectors. It aims at providing post-experience education and training activities by way of supplying exhaustive literature on the subject and by counselling with the experts in the field. After the completion of the course, the candidates would be able to (a) conduct energy audits in any industry, (b) identify energy flows, construct energy and mass balances of various unit operations, (c) evolve suitable strategies for efficient use of energy, (d) work

out suitable action plans for implementing the Energy Conservation Options, (e) apprise the Management of latest energy efficient technologies appearing from time to time, and (f) start a career as a qualified energy auditor/consultant

The duration of the course is one year and is open for any graduate in Engineering/Technology

or equivalent with a minimum of one year relevant experience in industries/R&D Organisations/Educational Institutions/Thermal Power Stations, etc

Further details may be obtained from the Head & Coordinator (PGDEM), Department of USIC & Instrumentation, Sri Krishnadevaraya University, Anantapur-515 003 (A P)

of adequate funds

Further, to ensure quality services to the cattle owners, they suggested that veterinary dispensaries be manned by registered veterinary practitioners only. The proposals regarding working out the possibility of involving NGOs for carrying out effective liaison between institutes and end users, and granting special incentives to authors writing books on various subjects of veterinary education in the light of their Indian experiences and conditions had also been submitted, said Dr Jit Singh

The seminar attended by over 250 delegates was inaugurated by Dr Michael Fox, Vice-President of the Humane Society of America. About 10 eminent veterinary experts and animal welfarists from England, United States of America, Sweden, Germany, Holland and South Africa, also participated in the seminar.

In his inaugural speech, Dr Fox lamenting upon the present status of animal health care, called for developing and implementation of a universal strategy to mitigate the sufferings of animals. Appreciating the decision of VCI to introduce Diploma Course in Veterinary Ethology and Animal Welfare, he said, Indian Veterinary Colleges would be paving way for such colleges in the whole world to start this course.

Dr S Arya, Vice-Chancellor, who presided, exhorted the delegates to make all out efforts to produce 'qualified and capable veterinarians'. He said formulation and implementation of animal welfare measures would not only help in ameliorating the sufferings of animals but would

News from Agricultural Universities

Seminar on Veterinary Education

Veterinary policy designers, teachers, researchers, field veterinarians and animal welfarists from all over India recently converged at Haryana Agricultural University (HAU) to attend the All India Symposium on research and development in Management of Surgical and reproductive disorders in Veterinary Practice and National seminar on veterinary education. To further boost the veterinary research in the country, they proposed for the establishment of the Indian Council of Veterinary Research on the lines of Indian Council of Medical Research (ICMR). Also, they strongly recommended implementation of the mandatory regulations of Veterinary Council of India (VCI) in all veterinary institutes in the country.

They opined that before notification in the Gazette of India, the proposed postgraduate education policy of the VCI should be critically examined and discussed. The need to introduce a course on Disaster Management was also expressed in order to train the veterinary graduates in tackling the animal wealth during unforeseen calamities. The

Council, as proposed by the delegates, agreed to start a one year Diploma Course in Veterinary Ethology and Animal Welfare.

It may be mentioned that the VCI was in the process of formulating regulations and revamping postgraduate education and teaching in the country. The seminar provided an opportunity to the Council to have direct interaction with academicians to seek opinions on the proposed veterinary education policy.

According to Dr Jit Singh, Convenor of the Seminar and Professor of Surgery, HAU, as most of the veterinary colleges were under the administrative control of agricultural universities, the delegates suggested the VCI to enter into a dialogue with the Vice-Chancellors or Registrars of these universities and impress upon them the mandatory requirement of following the regulations of the Council. They also proposed grant of academic autonomy to the veterinary colleges. For the smooth functioning of these colleges, it had been resolved that the VCI should initiate talks with the respective state governments for provision

also ensure optimum supply of animal products, for our teeming millions in the next century

Dr C M Singh, President, VCI and Dr R P S Tyagi, Vice-

Chancellor of Himachal Pradesh Agricultural University also addressed the inaugural function and chaired different sessions in the seminar

News from UGC

Countrywide Classroom Programme

Between 8th January to 22nd January, 1996 the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6 00 a m to 7 00 a m and 1 00 p m to 2 00 p m. The programme is available on the TV Network throughout the country.

1st Transmission

6 00 a m to 7 00 a m

9 1 96

"Bookfare

Oscillation - Amplitude Response as a Function of Frequency"

"Indo-Roman Trade - Part II
Coins

11 1 96

"Understanding Hydrocarbons"

"Semiotic Approach to Musical Aesthetics - Part I

"Yours Sincerely

13 1 96

'Starfinder - Part VII Gravity in Space"

"Special Care for Special Children'

"Ecology of River Ganga - II'

14 1 96

"Glmpses of Ladakh - Part I"

"The Roorkee Hat

"The Week Ahead'

16 1 96

Oscillation - Important Parameters

The Living Heritage of Temple Architecture - Part I

'Virus and Cells

18 1 96

"The Discoverer of Polarography

"Semiotic Approach to Musical Aesthetics - Part II"

Volcano

20 1 96

'Starfinder - Part VIII Orbital Motion

Democracy The Ideology and Practice

Garbage

21 1 96

"Glmpses of Ladakh - Part II"

Current Affairs Economics and Commerce

'The Week Ahead

IInd Transmission

1 00 p m to 2 00 p m

8 1 96

"The Week Ahead"

"External Borrowing - II Impact and Consequences'

"Pest Story - Part III"

9 1 96

Values in Education - Part III Reaching Out"

"Current Affairs Economics and Commerce"

'Health in Your Hands - Part I"

10 1 96

"Missile Technology - II Design and Integration'

"Philatelic Pleasure

'Plant Viruses - Part II"

11 1 96

"The Garbage Crisis'

"The New Narrative of Latin America - Part I"

12 1 96

Reaching out to the Heavens"

Mind Problems"

13 1 96

"Wood Joints'

'Facing the Future - Part I"

"The National Cadet Corps - Part II

14 1 96

No Telecast

15 1 96

The Week Ahead

Question Time

"Health Communication
Obesity

16 1 96

"Iron Ore Occurrence and Mining"

"Teaching Technique Role Play'

"Health in Your Hands - Part II Yoga"

17 1 96

"Missile Technology - III Classification Technology and Fallout'

"Indian Historiography - Part I"

"Revealing the Lac Operon"

18 1 96

"Microwave Antenna - Part I"

'Hydrological Cycle'

'The New Narrative of Latin America - Part II'

19 1 96

'The Cut of Compassion'

'A Breath of Fresh Air'

20 1 96

'Venturing out with Photography'

'Facing the Future - Part 2'

Sports Medicine

21 1 96

No Telecast

22 1 96

'The Week Ahead'

'Income Tax - An Introduction'

Saga of Silk - Part I Legends and Development

Hindi Telecast

प्रातः 6 00 से 7 00 बजे तक

8 1 96

'अर्थविज्ञान इतना आसान - भाग 3'

'भक्तिन - भाग 1'

10 1 96

'पृथ्वी का आकार कैसा ?'

'साम्प्रदायिक सद्भाव गांधी के विचार'

12 1 96

'भक्तिन - भाग 2'

असंगठित महिला श्रमिक

15 1 96

'अर्थविज्ञान इतना आसान - भाग 4'

'भक्तिन - भाग 3'

17 1 96

'जल विद्युत का उत्पादन'

'कैक्टस'

19 1 96

'जियो और जीने दो'

22 1 96

'हैम-एक अद्भुत दूर संचार का साधन'

'प्रकृति पुत्र आदिवासी'

News from Abroad

UNU Leadership Academy

Queen Noor of Jordan and the UN Secretary General, Boutros Boutros-Ghali, recently launched the International Leadership Academy of the United Nations University (UNU). This is the first United Nations-sponsored global Institute of this kind to be established in the Middle East. The ceremony, which took place in the Secretary-General's office at United Nations Headquarters, was held in the presence of Hisashi Owada, Permanent Representative of Japan to the United Nations, Abdul Salam Majali, former Prime Minister of Jordan, and Heitor Gurulino De Souza, Rector of the UNU. The occasion marked the initiation of a new UNU human resource development programme aimed at nurturing future leaders.

Acting on a proposal of Mr Majali, the Governing Council of the UNU decided in December 1994 to establish the Academy and to locate its seat at the University of Jordan in Amman. Jordan has pledged to provide \$1 million annually for the activities of the Academy.

The Academy aims to create a network of future leaders who will enhance global cooperation through dialogue and inter-cultural exchange and to study conflict resolution through negotiation, democracy, justice and solidarity. The objectives of the Academy are

the situation of the world within as well as outside their own professional backgrounds at an early stage in their careers and provide opportunities for establishing bonds of friendship and understanding which will be of great value at a later stage of their careers in developing as a community of leaders who have shared interactive training,

- * To help prevent the hardening of views and attitudes along the lines of one's own culture, economic and historical situation through the goodwill of personal rapport established during the interactive training,
- * To encourage training and dissemination of knowledge in the area of leadership, and
- * To serve as a focal point for the exchange of information and experience among young potential and future leaders of the world

Queen Noor serves as the Chairperson of the Advisory Committee of the Academy. Other members include Hisashi Owada, Jan Egeland, State Secretary, Royal Norwegian Ministry of Foreign Affairs, and Bartolome Mitre, Editor, *Diario La Nacion*, Buenos Aires, Argentina.

The first sessions of the Academy are expected to take place in March and April 1996.

- * To expose potential leaders to

BOOK REVIEW

A Welcome Addition

P B Mangla*

Mohamed Taher and Donald Gordon Davis Jr *Librarianship and library science in India* New Delhi, Concept Publishing Company, 1994 Pp 240 ISBN 81-7022-524-8 Rs 350/-

In a talk on All India Radio in April 1956 Dr Ranganathan, eminent Indian library scientist, said that 'an account of libraries in the first four periods — the Vedic, the Buddhist the Medieval, and, the Muslim — must necessarily depend upon historical research. This has not yet been done. The library profession is too small in India to spare a person to fill up this antiquarian gap. Those trained in the scientific method of tracing history are too preoccupied with dynastic and political history to spare sufficient time for cultural history in general and library history in particular. While commendable changes and vast developments have taken place in library field during the past four decades or so, yet library history continues to be an area of lesser interest among library professionals and other academics in this country. In library schools in the country, even today, there is no independent paper or course in the curricula at the university level postgraduate courses leading to BLIS and MLIS degrees, dealing with library history as such. Certain aspects of

Indian library history are taught as topics in different papers such as 'Library and society or, 'Library Organisation'. Even for M Phil or Ph D theses, library history is generally not chosen as an area of priority by the researchers. Technical subjects such as classification, cataloguing, indexing or documentation received top priority almost upto late 1970s. During, the past 15 years or so there certainly has been much change in this trend. Researchers and other library professionals are now more interested in areas such as bibliometrics, library management, collection development, library use, computerisation of libraries, networks and manpower development.

It is really paradoxical that in a country with a long, varied and rich cultural history not much attention has been paid towards historical studies in this field. Among the several possible reasons for such a situation the two which deserve special mention are (1) like several other countries in the East, in India also, there were libraries in the past with almost no concept of library service with the result that research scholars did not find much interest in collecting and analysing data about these individual

libraries which they felt did not provide them the required intellectual stimulus or interest in their scholarly pursuits, and (2) after independence in 1947, because of extensive programmes of national development and reconstruction, need for establishing libraries on scientific lines became much more urgent than to spend time on historical studies. Among a few historical works which however appeared during the past two decades or so some which deserve mention are Kesavan, BS, *History of Printing and Publishing in India: A story of cultural awakening* (National Book Trust, New Delhi, 1985) Mangla PB and others eds *Fifty years of librarianship in India: Past present and future* (Indian Library Association, Delhi, 1983) Marshall, DN *History of libraries: Ancient and Medieval* (Oxford & IBH, New Delhi, 1983), and Mishra J *History of libraries and librarianship in modern India since 1850* (Atma Ram Delhi, 1979).

The present volume is certainly a welcome addition in this field. It would help in filling up a gap in historical studies in this country. Also, it should provide some inspiration to several others to get interested in this area of academic pursuit. It has seven chapters: 1 Introduction, 2 Ancient India (3000 BC-1206AD), 3 Medieval India (1206-1757), 4 Modern British India (1757-1947), 5 Independent India (since 1947), 6 Library development in the States, and 7 Conclusion. There are two appendices: Appendix I Select Chronology of Noteworthy Events, and, Appendix II Select List of Foreign Library Consult-

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ants, followed by a Bibliography, and Keyword Index. In this rather small size volume the authors have made an appreciable attempt to outline the historical developments spanning over 5000 years of India's history. They have relied upon primary and secondary sources in English and other languages which are generally found quoted in the text and are also listed in the Bibliography. Rightly realising the inherent difficulties and limitations in such a historical study, the authors have defined the scope of this study in the Preface by saying that, 'although this work will fill a great void in the world history of librarianship and library science, it too is only a beginning. As an outline, it serves as a kind of synthesis and bibliographic essay that ties together the long history of library in India and points the reader to the existing literature. Students of library science in South Asia and elsewhere will benefit the most from this effort. However, as a contribution to the study of international and comparative librarianship, the work should initiate and facilitate indepth research in areas which are identified as understudied and in areas which are unexplored.

The Introduction chapter describes general aspects such as sources of information, art of writing, writing material, growth of subjects, literary, etymology of the term book/library and the art of historiography. In chapters 2 and 3 which bring the historical account upto 1757 the text has been organised under three sub-headings, viz, libraries attached to (a) palaces/courts, (b) centres of learning, and (c) centres of religion. Chapter 3 also contains some information about libraries owned by nobility and elite class

including kings and queens. Certain useful details about their administration and management have also been given in these chapters. Chapter 4 gives information about the different types of libraries as well as about professional associations, professional leaders, library literature, education for librarianship, and administration of libraries during the period upto 1947. Chapter 5 contains a brief summary of developments in the field during the post-independence period. Chapter 6 describes details of developments in 21 States out of a total of 33 States and Union Territories in the country. In Chapter 7 the authors have made a useful attempt to give suggestions for future work and developments under Agenda for Research.

This volume certainly reveals several interesting facts in the library history of this country. It is interesting to know that Kautilya's *Arthashastra* mentions about an '*adhyakasha*' as an officer incharge of the manuscripts collection entitled *Nibandha Pustak Sihana*, Amir Khusro (d 1325) who was a great poet in Hindustani language and whose contributions in literature are greatly admired even today, was Librarian of the Royal Library during the Sultanate period. The Mughal rulers (1526-1707) had great interest in literature and culture. They established an Imperial Library at Agra which can be rightly called the first National Library in this country. While describing the richness of its collection, Vincent Smith, a well known historian of Indian history is of the view that 'to which probably no parallel existed or even has existed in the world'. This Library had a collection of about 24000 rare manuscripts, reports and other documents. Emperor Akbar

(1556-1605) even created a separate department to look after libraries at Agra. Abdul Rahim Khan-il-Khanan, a great noble in Akbar's *darbar* and son of his guardian Bairam Khan, established a great library during this period. Some rare manuscripts of that library are found in the much coveted collections of certain manuscript libraries of today such as Raza Library, Rampur, Khuda Baksh Library, Patna, Asiatic Society Library, Calcutta, and Andhra Pradesh Oriental Manuscripts Library, Hyderabad. Prince Dara Shikku, son of Emperor Shah-jehan, who was a great scholar of his time, is another great name which deserves special mention in this historical account. The remnants of his library building can still be seen in Old Delhi. Certain details about the administration of these libraries which have been culled out from scattered sources of information provide some insight about the status of these libraries and their library staff.

The major developments that took place during and after the second half of the 19th century are better known and well documented. Details given in Chapter 6 about the post-independence era are quite sketchy and somewhat disappointing. This period of study certainly has many developments and changes which deserve careful analysis and comprehensive treatment. Undoubtedly such a study would require a multi-volume publication and the 15 pages of this volume can hardly do proper justice even in an outline form. The authors however seemed to be more interested in narrating the historical past rather than the recent past and that may account for this brief description of the post-independence era. This description how-

ever has certain facts which should have been properly scrutinised so as to provide a more authentic description of the various events and developments. For example, NISSAT certainly was not the brain child of Peter Lazar. Conceptual framework and need for such a system had already been discussed and debated much before Peter Lazar came as a Consultant and submitted his report. Also the present NASSDOC was so named in late 1980s and its official name till then was Social Science Documentation Centre (SSDC). It would certainly be not correct to conclude that today the majority of academic libraries — especially in the institutions of higher education — despite some progress share a bleak outlook (p 96). Such a remark tends to create an impression that the authors have not studied the developments in these libraries with proper details and analysis. Actually libraries in institutions of higher education have progressed in a much better manner during the past four decades or so than several other categories of libraries and their future looks to be quite promising. Another area which should have been dealt with more optimism is that of computerisation and/or modernisation.

It is certainly pertinent to mention here that historical studies are essential to have a better grasp of the past and for proper planning and careful development in future. Unfortunately however it is noticed that even in developed countries such as USA, UK, France and several others not much interest is being taken by the younger library personnel in this vital area of research. The present void certainly needs to be filled up and for that purpose concerted efforts would have to be made, both locally as well as at

the international level by agencies such as professional associations and funding organisations like Unesco, IDRC and others.

The present volume is certainly written in a highly readable style and well produced. It would certainly be of much interest to students, teachers and

practising library professionals. The authors should add a Glossary of Terms in future editions so as to facilitate better understanding of Sanskrit, Persian and Turkish terms. Also, a paperback edition, with reasonable price, would certainly promote its wider distribution in developing countries.



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THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities

BIOLOGICAL SCIENCES

Environmental Sciences

1 Pole Pradcepkumar Krishnarao **Studies in environmental biopollution at Udgir** Marathwada Dr B N Pande Head Department of Environmental Science Dr Babasaheb Ambedkar Marathwada University Aurangabad

Biology

1 Satyaraj Ebenezer **Analysis of responder T cell activation by antigen presenting T cells** JNU Dr Vinceta Bal and Dr Satyajit Rath

Biochemistry

1 Hussain Mohd Mahaboob **Studies on folic acid degradation** Osmania Dr N Lakshmatiah National Institute of Nutrition Hyderabad

2 Jethwaney Deepa **Isolation and characterisation of proline permease of *Candida albicans*** INL Prof Rajendra Prasad

Microbiology

1 Sarada I **Strain improvement and indigenous production of cephamycin C by *Streptomyces clavuligerus*** Osmania Dr (Mrs) Padma Sridhar Department of Microbiology Osmania University Hyderabad

Botany

1 Ashwath C **Genetical studies in *Gerbera*** Gauhati Dr C Bhowmik and Dr V A Parthasarathy

2 Bhandari Smitina **Studies on airspora and circadian periodicity in the occurrence of airborne fungal spores** Durgavat Dr M Oommichan and Dr R P Mishra Department of Biological Sciences Kani Durgavat Vishwavidyalaya Jabalpur

3 B S Singh **Involvement of plant growth regulators in early ovule/seed and fibre development in cotton** PAL

4 Chakraborty Ratan **A study of fungal ecology of Garo hills with special reference to the parasitic forms on certain forest plants** Gauhati Late Dr G Konger

5 Dam Namita **Flora of Cherrapunjee subdivision East Khasi Hills Meghalaya** Gauhati Dr S Chaudhary

6 Gaddam A Babu **Phytotoxicity and interactive effect of cadmium with zinc and manganese and uptake translocation and accumulation in *Abelmoschus esculentus*** Vikram Dr V P Singh

7 Kanjilal Purnendu Bikash **Studies on wood management in palmarosa *Cymbopogon martinii* Wats var *motia* burk** under agroclimatic conditions of Jorhat Assam Gauhati Dr D N Bordoloi and Dr R Sarma

8 Kesava Reddy C **Evaluation of rice, *Oryza sativa* L genotypes for nitrogen uptake and utilization efficiency** Osmania Dr E A Siddiq Indian Council of Agricultural Research New Delhi

9 Koche Vijaya **Studies on clonal propagation of certain forest trees by tissue culture and changes in protein profile during differentiation** Ravishankar Dr S K Mishra Reader School of Studies in Bioscience Pt Ravishankar Shukla University Raipur

10 Londhe Raju Dhondopant **Nutritional evaluation of leaf protein concentrates obtained in the bidkin process** Marathwada Dr R N Joshi Department of Botany Dr Babasaheb Ambedkar Marathwada University Aurangabad

11 Maragathavally K J **Interrelationship between leaf development and photoregulation of starch degrading enzymes in pearl millet *Pennisetum americanum*** Hyderabad Prof R P Sharma

12 Namdev Atul **Studies on the interaction of root-knot nematode *Meloidogyne* with root-rot fungus, *Rhizoctonia* on cowpea** Bundelkhand Dr V P Varshney Department of Botany Vipin Bihari College Jhansi

13 Nampy Santhosh **Ecology and systematics of the polypodioid ferns of South India** Calicut Dr P V Madhusoodanan Department of Botany University of Calicut Calicut

14 Nuzhat Fatima **Investigations on certain primary trisomics and a wide hybrid *O. sativa* X *O. longistaminata* in rice** Osmania Prof S Y Anwar Department of Genetics Osmania University Hyderabad

15 Phase Nakul **Microbial conversion of soybean sterols to steroid drug intermediates** Devi Ahilva Dr Shridhar Patil Department of Biology Devi Ahilva Vishwavidyalaya Indore

16 Prabhakar Raju C **Floristic studies on Asteraceae on Andhra Pradesh India** Krishnadevaraya Dr R R Venkata Raju Department of Botany Sri Krishnadevaraya University Anantapur

17 Prabhakara Rao Udravarapu **Studies on root knot disease of FCV tobacco in Andhra Pradesh caused by *Meloidogyne javanica* (Treub)** Chitwood Andhra

18 Sarkar Smigdha **Studies on herbaceous plants of Karbi-Anglong District of Assam with reference to their taxonomy and economic utilization** Gauhati Prof S Chowdhury Head Department of Botany Gauhati University Guwahati

19 Sevicnan P J **Studies on *Azolla* species as biofertiliser for rice in Kerala** Calicut Dr P V Madhusoodanan Department of Botany University of Calicut Calicut

20 Sherlija K K **Translocation metabolites from flag leaf and its relation to pseudocarp and nut development in *Anacardium occidentale* L** Calicut Dr K Unnikrishnan University of Calicut Calicut

21 Shinde Singh Anuradha **Studies on seeds health testing interactions at seeds - soil interface** Marathwada Dr

(Mrs) Usha Deshpande Department of Botany Science College Nanded

22 Shiva Prakash N Studies on regeneration and transformation of pigeonpea *Cajanus cajan* JNU Dr Neera B Sarin

23 Sinha Ajay Kumar Ecological risk assessment studies on catechu industry wastes Magadh

24 Sivaram, V Bee flora honey flow and beekeeping in the plains of Karnataka Bangalore Dr T R Balachandra Naidu and Dr C Chandrashekara Reddy Department of Zoology Bangalore University Bangalore

Agriculture

1 Bhagat Arun Prasad Studies on yellow vein mosaic disease of bhindi *Abelmoschus esculentus* Moench with special reference to nature of resistance Rajendra Agri

2 Choudhary Ramawatar Crop regulation of guava *Psidium guajava* L with chemicals Rajendra Agri

3 Nandan Ravi Studies on the growth yield and quality of french bean *Phaseolus vulgaris* L under various irrigation and nitrogen management system Rajendra Agri

4 Rajesh Kumar Genetic diversity and diallel analysis studies in brinjal *Solanum melongena* L Birsa Agri

5 Roy Rajendra Prasad Investigation on web blight of mungbean caused by *Thanatephorus cucumeris* (Fr) Donk with special reference to epidemiology and biocontrol Birsa Agri

6 Saxena Dinesh Chandra Forage yield and quality of *Pennisetum pedicel* alum varieties in relation to fertilizer nitrogen and intercrops Bundelkhand Dr Mohlal Head Department of Agronomy Indian Grassland and Fodder Research Institute Jhansi

7 Shambhu Kumar Stability performance in maize crosses for oil and starch content over seasons and locations Rajendra Agri

8 Sharma Akhuesh Genetic analysis of pod yield and component traits in garden pea *Pisum sativum* L HP Krish Dr A K Singh Department of Vegetable Science and Floriculture College of Agriculture Palampur

9 Subhash Chander Biocontrol of wax moths with *Apanteles galleriae* Wilkinson HP Krish Dr Desh Raj Department of Entomology College of Agriculture Palampur

10 Sundeep Kaur Management studies on *Helicoverpa armigera* Hubner in tomato PAL

Zoology

1 Ahalya D Age related changes in intermediary metabolism associated with alternate day dietary restriction in male balb/c mice Osmania Prof K Shankariah Department of Zoology Osmania University Hyderabad

2. Chamundeswari Devi B Growth evaluation under formulated feeds in cultivable fish, *Labeo rohita* Hamilton. Osmania Prof Shantha Vijayaraghavan Department of Zoology Osmania University Hyderabad

3 Erfanullah Carbohydrate nutrition in some selected cultivable finfish species. AMU Prof A K Jafri

4 George, Sunny Studies on fresh water Ostracods of Kerala Calicut Dr K K Gopinathan Nair Department of Zoology Christ College Irriyalakuda

5 Gopalakrishnan, P Influence of abiotic factors in the growth and production of white shrimp, *Penaeus indicus* H Milne Edwards in culture system TN Vet Dr V Sundararaj, Prof and Head Department of Aquaculture Fisheries College and Research Institute Tuticorin

6 Gupta Sahil Kumar Taxonomy bionomics and control plant associated mites II Taxonomy of mites II Taxonomy of mites associated with birds 'nests' Burdwan

7 Hajra Kuhu Community dynamics and survival strategies of zooplankton in temporary waterbodies JNU Dr Brij Gopal

8 Indira Nair R Studies on the effects of the chemosterilant Bisazir on the reproductive biology of *Spodoptera mauritia* Boisd (Lepidoptera Noctuidae) Calicut Dr V S Krishnan Nair Department of Zoology University of Calicut Calicut

9 Ingole Vinod Gangaram Studies on the cestode parasites of vertebrates from Parbhani District M S India Marathwada Dr G R Shinde Department of Zoology Dr Babasaheb Ambedkar Marathwada University Aurangabad

10 Laxman Rao S Effect of magnetotherapy on the reproductive physiology of mice with special reference to inhibition of ovulation and retardation of seminiferous tubules Osmania Dr G H R Sarma Bhavan's New Science College Hyderabad

11 Laxminarasamma Y Metilda Studies on the helminth parasite population of certain reptiles of Nalgonda District, A P Osmania Prof V Rajeswar Rao Department of Zoology Osmania University Hyderabad

12 Patil Sampatrao Shivaprao Studies on the cestode parasites of vertebrates from Sangli and Satara District Marathwada Dr G B Shinde Department of Zoology Dr Babasaheb Ambedkar Marathwada University Aurangabad

13 Pathak Seema Energy loss to storage food stuff due to insect pests Ghasidas Dr K P Dwivedi C M Dubey Mahavidyalaya Bilaspur

14 Philip K P Studies on the biology and fishery of fishes of the Family Priacanthidae (Pisces Perciformes) of the Indian waters CUST Dr Kuruvilla Mathew Reader Department of Industrial Fisheries Cochin University of Science and Technology Kochi

15 Sachan Geeta Helminth parasites (Digenea Trematoda) of fresh water fishes of District Kanpur Bundelkhand Dr S C Agarwal Reader Department of Zoology Vipin Bihari College Jhansi

16 Singh Amit Application of enhancer trap technique in study of *Drosophila* patterns Devi Ahilya Dr Pradeep Sinha Department of Biology Devi Ahilya Vishwavidyalaya Indore

17 Srinivas Reddy P Responses of free radicals lipid peroxidation and antioxidant defense mechanisms during cadmium toxicosis in liver and kidney of an albino rat

Osmania Prof S L N Reddy Department of Zoology Osmania University Hyderabad

Medical Sciences

1 Ajay Kumar Glutathione redox system in precancerous and cancerous lesions of uterine cervix Dayanand Rohtak

2 Chandrasekhar Sagar B K Morphological aspects of neuronal differentiation and synaptogenesis in the spinal cord of frog during development NIMHANS Dr Sarala Das Prof and Head Department of Neuropathology National Institute of Mental Health and Neurosciences, Bangalore

3 Doke Prakash Prabhakar Rao A study of some aspect of maternal health services with special emphasis on high risk approach and maternal mortality Marathwada

4 Mukherjee Bipasha Recombinant baculovirus mediated expression of foreign genes as a function of host cell line An analysis using BhCG and luciferase as reporters JNU Dr S E Hasnain

5 Phool Singh Thiamin induced changes in rat under pathological conditions of diabetes and protein deficiency Dayanand Rohtak

6 Upadhayay KN Role of gokshuradi quath and guggulu on mutrashmari Gujarat Ayurved Prof Kulwantsingh

Veterinary Sciences

1 Brahmashtri Balkrishna Pratapchandra Zona-free hamster egg penetration bio-assay to assess fertility of bovine

semen. TN Vet Dr John Edwin Prof and Head Department of Animal Genetics Madras Veterinary College Madras

2 Dhanalakshmi B Studies on the effect of residual pesticides in milk on growth of the starter culture TN Vet Dr M Mohamed Habibulla Khan Director of Extension Education (Retd) Tamilnadu Veterinary and Animal Sciences University Madras

3 Hantharan P Influence of certain drugs on plasma body proteins and lipids in broilers TN Vet Dr B Gowrisankar Technical Officer to Dean Madras Veterinary College Madras

4 Joshi Chaitanyakumar Gnyadevprasad Identification and assignment of synthetic group to chromosome using interspecific somatic cell hybrids in buffalo TN Vet Dr A R Krishnan Prof and Head Department of Animal Genetic and Breeding Madras Veterinary College Madras

5 Punniyamurthy N An attempt to improve feed intake and growth by active immunization against cholecystokinin (CCK) in poultry TN Vet Dr B Gowrisankar Technical Officer to Dean Madras Veterinary College Madras

6 Ramasamy D Accelerated ripening of cheese TN Vet Dr R Narasimhan Prof and Head Department of Dairy Science Madras Veterinary College Madras

7 Siva Kumar T Comparative productive efficiency among meat animal species TN Vet Dr M Thiagarajan Prof and Head Department of Livestock Production and Management Madras Veterinary College Madras



MINISTRY OF DEFENCE DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)

Advt No 046/RAC/95

SENIOR RESEARCH APPOINTMENTS

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO) INVITES APPLICATION FOR LEADERSHIP POSITIONS IN RESEARCH & DEVELOPMENT FROM CREATIVE INNOVATIVE AND HIGHLY MOTIVATED SCIENTISTS AND ENGINEERS FOR WORKING AT THE STATE-OF ART LEVEL IN ITS WELL EQUIPPED LABORATORIES

ARMAMENT RESEARCH & DEVELOPMENT ESTT PASHAN PUNE

Item No 1 **SCIENTIST 'G'** (Rs 5900-7300) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Bachelor's degree in **Mechanical Engineering or Master's degree in Science** from a recognised university or equivalent (ii) Twelve years experience in Research Design and Development of weapon systems and related disciplines of work out of which five years in a senior position of responsibility dealing with inter-disciplinary timebound programmes/projects and coordination with public/private sector for technology transfer and achievement of goals **DESIRABLE QUALIFICATIONS** (i) Master's degree in relevant branch of Engineering/ Doctorate degree in the related science subject (ii) Proven record of Technical/Managerial Leadership by way of leading a group/Lab and successful completion of projects i.e. planning design/development and prototype manufacture leading to technology transfer and production

JOB DESCRIPTION The scientist is required to provide scientific & managerial leadership in the area of design & development of Armament/ Weapon Systems and to lead/guide a team of scientists

involved in multi disciplinary Armament/Weapon development Lab and also to interact creatively with other R&D Labs/academic institutions and production agencies

SOLID STATE PHYSICS LABORATORY DELHI

Item No 2 **SCIENTIST G** (Rs 5900-7300) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Master's degree in **Physics or Electronics OR at least second class Bachelor's degree in Electronics Engineering/ Electrical Engineering** from a recognised university or equivalent (ii) Twelve years experience in Research Design and Development or production in Semi Conductor Technology out of which 5 years in a senior position of responsibility dealing with interdisciplinary programme and coordination with public/private sector and achievement of goals **DESIRABLE QUALIFICATIONS** (i) Doctorate degree in relevant discipline of science or Master's degree in relevant discipline of engineering (ii) Practical experience in submicron IC technology in production environment quality assurance and technology transfer

JOB DESCRIPTION The scientist is required to provide scientific & managerial leadership in the area of fabrication of submicron semiconductor devices and lead a team of scientists and technolo-

gists in the multidisciplinary field of solid state devices and materials. He will be responsible for quality assurance and technology transfer. He should be able to interact with other laboratories, R&D institutions and production agencies.

DEFENCE RESEARCH AND DEVELOPMENT LABORATORY, HYDERABAD

Item No 3 **SCIENTIST E** (Rs 4500-5700) 1 post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech in **Aeronautical Engineering** from a recognised university or equivalent (ii) Ten years research and development experience in the design of aerodynamic configurations for missiles/launch vehicles **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/PhD degree in Aeronautical Engineering (ii) Experience in performance analysis from flight data, wind tunnel testing and coordination with Aeronautical Establishments

HIGH ENERGY MATERIAL RESEARCH LABORATORY PUNE

Item No 4 **SCIENTIST E** (Rs 4500-5700) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Electronics/ Chemical Engineering** from a recognised University or equivalent (ii) Ten years of experience in development of solid propellant composition, evaluation of rocket motor performance and fully conversant with all the operations of solid rocket motor processing **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in relevant branch of Engineering (ii) Experience in processing of large size solid propellant rocket motors and performance evaluation. Quality standards and safety procedures in handling of solid propellants

ELECTRONICS AND RADAR DEVELOPMENT ESTABLISHMENT BANGALORE

Item No 5 **SCIENTIST E** (Rs 4500-5700) 1 post **ESSENTIAL QUALIFICATIONS** (i) At least second class Bachelor's degree in **Electrical/Electronics and Communication Engg** from a recognised university or equivalent (ii) Ten years experience in — (a) Design, development and evaluation of Electronic Communication equipment, preferably pertaining to Military Tactical Area Grid Communication network (b) Modelling and Simulation of Communication Network and its features **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in relevant branch of Engineering (ii) Knowledge about — (a) ISDN and B-ISDN Network. Familiarity with EUROCON and ITU-T Standards and experience in Networks like ASCON, Plan AREN (b) Documentation standards for Hardware and Software for Defence equipment

DEFENCE RESEARCH AND DEVELOPMENT LABORATORY HYDERABAD

Item No 6 **SCIENTIST D** (Rs 3700-5000) 1 post **ESSENTIAL QUALIFICATIONS** At least second class BE/B Tech degree in **Aero/Mechanical/Structural Engineering** from a recognised University or equivalent (ii) Eight years of experience in the design of pressure vessels for aerospace applications and fracture mechanics or visco-elasticity analysis of solid propellant grains of rocket motors **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D in Aero/Mechanical/Structural Engineering (ii) Fracture based design of rocket motor casings for Aerospace applications, stress and fracture analysis of solid propellant grains

Item No 7 **SCIENTIST D** (Rs 3700-5000) 2 Posts **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Mechanical/Aero/ Chemical Engineering** from a recognised University or equivalent (ii) Eight years of experience in design, development, fabrication and testing of solid propellant rocket motor systems **DESIRABLE QUALIFICATIONS** (i) ME/M Tech /Ph D degree in Propulsion/Mechanical/Aero/ Chemical Engineering (ii) Experience in design and development of large case bonded solid propellant rocket motors (iii) Assembly and testing of large solid propellant rocket motors (iv) Analysis of test results and evaluation of performance of rocket motors

Items No 8 **SCIENTIST D** (Rs 3700-5000) 2 Posts **ESSENTIAL**

QUALIFICATIONS (i) At least second class BE/B Tech degree in **Mechanical/Aero/Chemical Engineering** from a recognised university or equivalent (ii) Eight Years research and development experience in propulsion systems out of which 4 years in design and development of air breathing propulsion systems and 4 years in testing, analysis and evaluation performance of air breathing propulsion systems **DESIRABLE QUALIFICATIONS** ME/M Tech/Ph D degree in Propulsion/ Mechanical/Aero/ Chemical Engineering

Item No 9 **SCIENTIST 'D'** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Electronics Engineering** from a recognised University or equivalent (ii) Eight years experience in Quality Assurance/ Quality control/ Testing of airborne electrical/ electronic systems and ground systems **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/ Ph D degree in Electrical/Electronics Engineering (ii) Experience in Quality Control/Quality Assurance/Testing of onboard computers, inertial measuring systems and other electronic systems

Item No 10 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Mechanical/Aero/Chemical Engineering** from a recognised University or equivalent (ii) Eight years experience in design, development, assembly and testing of pyro/Aerospace mechanisms **DESIRABLE QUALIFICATIONS** (i) ME/M Tech degree in Mechanical/Aero/Chemical Engineering (ii) Experience in design and development of solid charge thrusters, ejection systems, separation systems using pyro technique component and electrical actuation systems

Item No 11 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Master's degree in **Science** or Bachelor's degree in **Engineering** from a recognised University or equivalent (ii) Eight years experience in a reputed library in responsible positions and knowledge in information systems **DESIRABLE QUALIFICATIONS** (i) Master's degree in Library Science (ii) Experience in library information systems and technical documentation

RESEARCH CENTRE IMARAT HYDERABAD

Item No 12 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Electronics/Mechanical Engineering** from a recognised university or equivalent (ii) Eight years experience in design and development of onboard control systems/components/actuators mechanisms for Aerospace applications **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in Control Engineering or relevant branch of Engineering

Item No 13 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Electronics Engineering** from a recognised university or equivalent (ii) Eight years experience in design and testing of precision servo control systems **DESIRABLE QUALIFICATIONS** (i) ME/M Tech degree in Electrical/Electronics Engineering (ii) Experience in prototype realisation of precision servo systems for Aerospace applications

Item No 14 **SCIENTIST D'** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electrical/Electronics and Communication Engineering** (ii) Eight years experience in design and development of RF front-end systems covering X to Ka bands **DESIRABLE QUALIFICATIONS** (i) ME/M Tech degree with specialisation in micro and radar Engineering or relevant branch of Engineering (ii) Experience in test and evaluation of the seeker systems for Aerospace applications

RESEARCH AND DEVELOPMENT ESTABLISHMENT (ENGINEERS), PUNE

Item No 15 **SCIENTIST 'D'** (Rs 3700-5000) 1 post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Mechanical Engineering** from a recognised University or equivalent (ii) Eight years experience in design, development and fabrication of launch structures **DESIRABLE QUALIFICATIONS** (i) ME/

M Tech/ Ph D degree in Mechanical/ Structural Engineering (ii) Experience in design fabrication of structures/launch systems for Aerospace applications

HIGH ENERGY MATERIAL RESEARCH LABORATORY, PUNE

Item No 16 **SCIENTIST 'D'** (Rs 3700-5000) 2 Posts **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Chemical/Mechanical Engineering** from a recognised University or equivalent. (ii) Eight years experience in—(a) processing of solid propellant grains (b) rocket motor hardware preparation (c) development of solid propellant composition and evaluation **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in Chemical/ Mech/ Aero Engineering (ii) Experience in development of case bonded solid propellants

ARMAMENT RESEARCH & DEVELOPMENT ESTABLISHMENT, PUNE

Item No 17 **SCIENTIST 'D'** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Chemical/Mechanical/Electrical Engineering** from a recognised University or equivalent (ii) Eight years experience in development of explosive systems or design and development of electrical actuation systems **DESIRABLE QUALIFICATIONS** ME/M Tech/ Ph D degree in Chemical/ Mech/ Electrical Engineering

INTERIM TEST RANGE, BALASORE

Item No 18 **SCIENTIST 'D'** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Electronics/Electrical Engineering** from a recognised University or equivalent. (ii) Eight years experience in development/operation of radars and telemetry systems **DESIRABLE QUALIFICATIONS** ME/M Tech/Ph D degree in Electronics/ Electrical Engineering

CENTRE FOR ARTIFICIAL INTELLIGENCE AND ROBOTICS, BANGALORE

Item No 19 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class BE/B Tech degree in **Mechanical Engineering** from a recognised University or equivalent (ii) Eight years Research & Development experience in robotics and related areas **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in Mechanical Engg with specialisation in robotics and related areas (ii) Four years R&D experience in robotics and related areas in national and/or international laboratories

Item No 20 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Master's degree in **Physics/Computer Science or BE/B Tech degree in Electronics Engineering** from a recognised University or equivalent (ii) Eight years Research & Development experience in Artificial Intelligence Software development or related areas **DESIRABLE QUALIFICATIONS** (i) ME/M Tech/Ph D degree in Computer Science/Electronics Engineering/Physics (ii) Four years R&D experience in Artificial Intelligence Software development or related areas in national and/or international laboratories

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION, DELHI

Item No 21 **SCIENTIST 'D'** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Master's degree in **Science** or Bachelor's degree in **Engineering** from a recognised University or equivalent (ii) Eight years experience in translation of documents and technical interpretation from **Russian to English** and vice versa **DESIRABLE QUALIFICATIONS** (i) Ph D in science or ME/M Tech in Engineering (ii) Diploma or special training in Russian language course (iii) The candidate to have proven capability in technical documentation

DEFENCE ELECTRONICS APPLICATIONS LABORATORY, DEHRADUN

Item No 22 **SCIENTIST D** (Rs 3700-5000) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Bachelor's degree in **Electronics and Communication Engineering** from a recognised University or equivalent (ii) Eight years R&D experi-

ence in Electronics and Communication equipment. **DESIRABLE QUALIFICATIONS** ME/ M Tech/Ph D degree in Electronics and Communication Engineering

DEFENCE INSTITUTE OF PHYSIOLOGY AND ALLIED SCIENCES, DELHI

Item No 23 **SCIENTIST 'C'** (Rs 3000-4500) 1 Post **ESSENTIAL QUALIFICATIONS** (i) At least second class Master's degree in **Zoology** (ii) Four years R&D experience in reproduction biology **DESIRABLE QUALIFICATIONS** Doctorate degree in science (ii) Experience in contraception research using animal models

FOR ALL THE ABOVE POSTS KNOWLEDGE OF FRENCH, GERMAN, RUSSIAN JAPANESE AND CHINESE WILL BE DESIRABLE QUALIFICATION

GENERAL CONDITIONS

- PROMOTION PROSPECTS** DRDO offers excellent opportunities for career advancement as Scientist Result oriented motivated scientist can look forward to promotions under Flexible Complementing Scheme to following grades of scientists (i) Scientist D Rs 3700-5000 (ii) Scientist E Rs 4500-5700 (iii) Scientist F Rs 5100-6300 (iv) Scientist G Rs 5900-7300
- Higher starting salary may be granted to the candidates whose performance is exceptionally brilliant in the interview
- AGE LIMITS** (i) For Scientist C not exceeding 35 years For Scientist D and Scientist E not exceeding 45 years (ii) For Scientist G not exceeding 50 years Age is relaxable by 5 years in case of Govt servants and those belonging to Scheduled Castes Scheduled Tribes and three years in case of Other Backward communities Crucial date for determining age is 25 Jan 1996
- HOW TO APPLY** Neatly type-written application on plain paper in the prescribed format (reproduced below) duly filled in own hand writing accompanied with two self addressed unstamped envelopes and a crossed non-refundable Postal Order/Bank Draft of the value of Rs 10/ (as fee for each post) drawn in favour of **DIRECTOR RAC, payable at Delhi** should be sent to **Director, Recruitment & Assessment Centre, Lucknow Road Timarpur Delhi- 110054** preferably by registered cover superscribed "Application for the post of Scientist" Advt No 046/RAC/95 Item No " There is no fee for SC/ST candidates **Last date of receipt of applications is 25 Jan 96** In respect of candidates from Andaman & Nicobar Islands Lakshadweep and abroad last date of receipt of applications is **10 Feb 96**
- Persons called for interview would be reimbursed actual train/ bus fare by shortest route limited to second class rail fare (1st class rail fare for Scientist G posts) from the normal place of residence to the place of interview
- Only Indian nationals need apply
- One copy of recent passport size photograph should be pasted on right hand corner of the first page of the application
- Attested copies of certificates/testimonials regarding qualifications and experience should be attached to the application form Self attested copies will be accepted **NO ORIGINALS SHOULD BE FORWARDED**
- Candidates will have to produce original certificates at the time of interview and one set of zerox copy of degree certificates and mark sheets which will be retained by RAC
- Incomplete applications or those received late will be summarily rejected and no correspondence would be entertained in this regard
- These prescribed Essential Qualifications are the bare minimum and the mere possession of the same does not entitle candidates to be called for interview Where the number of applications received in response to an advertisement is large

and it will not be convenient or possible for the Recruitment & Assessment Centre (RAC) to interview all these candidates the RAC may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than that of the minimum prescribed in the advertisement or by holding a written test. No TA is admissible in case a written test is held

12 CANDIDATES WORKING IN GOVERNMENT/PUBLIC SECTOR UNDERTAKINGS/AUTONOMOUS ORGANISATIONS MUST APPLY THROUGH PROPER CHANNEL THEY SHALL NOT BE INTERVIEWED IF THEY FAIL TO PRODUCE A NO OBJECTION CERTIFICATE FROM THEIR EMPLOYER AT THE TIME OF INTERVIEW

13 Candidates desirous of applying for more than one post may apply separately for posts indicating item No. of the posts accompanied by separate requisite Indian Postal Order/Bank Draft

14 Candidates on appointment will have the opportunity to carry out PhD with external registration and may be sponsored for doing M Tech

15 Opportunities are also available for study leave for carrying out higher studies abroad

16 DRDS Officers may be sponsored for training abroad

17 Though initial place of posting is indicated against some of the posts yet candidates have the liability to serve anywhere in India

18 Number of posts against each item is tentative and may vary

19 All extra sheets used by the candidates MUST be duly authenticated by them

20 Candidates must be in sound bodily health They must if selected be prepared to undergo such medical examination and satisfy such medical authority as Government may require

21 CANVASSING IN ANY FORM WILL MEAN DISQUALIFICATION

PROFORMA APPLICATION

(Use A 4 size 21 x 30 cm of paper)

Application for the post of Scientist*

* (To be indicated)

Affix Passport size latest Photograph

- 1 Advertisement No
- 2 Item No
- 3 Details of Postal Order(s)/Bank Draft No Date and Amount
- 4 Name in full (Sri/Smt /Km) (in block letters)
- 5 (a) Date of Birth (in Christian era in figures)
(b) Age as on 25th Jan 96
- 6 Nationality
- 7 Marital Status
- 8 Father s/Husband's name
- 9 Address for correspondence
- 10 Permanent Address
(in block letters with pin code)
- 11 Nearest Railway Station
- 12 Whether belongs to SC/ST/OBC
(If yes attach certificate)
- 13 Educational Qualifications

Sr No	Exam Passed	University/ Institution/ Board	Year of Passing	Subjects taken	Percentage of Marks	Division	Rank/ Position in the Univ/ Board/ Institute

*In chronological order from X Standard (SSLC/HS/HSC) onwards

14 Have you qualified NET/GATE Examination ? Yes/No

(a) If yes please indicate year of Passing & Percentile score

15 Are you registered for a higher degree? Yes/No

(a) If yes please indicate Title of Degree University & date of registration

(b) If no please indicate whether you propose to register for a higher degree

16 Professional Training

Organisation	Period From To	Details of Training

17 Employment Record (Attach separate sheet in following format)

Name & address of employer/ Organ	Period of service From To	Designation of the post held/Name of Estt.	Scale of pay of each post	Detailed description of work	Reason for leaving

* Should not exceed one A 4 size page in any case

18 Present Basic Pay

Total emoluments

Salary expected

19 (a) Are you a Central/State Govt Servant ?

(b) If not, whether an employee of Public Sector Undertaking/ autonomous body/Private body

20 Minimum joining time required

21 No. of papers published (Give details in separate signed sheet(s))

22 Field of special interest

23 Are you under any contractual obligations to serve Central/ State Govt/Any other public sector undertaking or Autonomous body and if so give details

24 Details of relatives already employed in DRDO

Name of Relatives	Relationship	Lab/Estt in which employed	Post Held

25 Have you applied for any post in DRDO during the past two years? If yes give particulars

Sr No	No. and Date of Advt	Name of Posts Discipline	Date of Interview	Remarks

26 Any other information you may wish to add (use separate sheet, if necessary)

27 Declaration

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time I am found to have concealed/distorted any material information my appointment shall be liable to summary termination without notice. I will if and when required take up duty in the discharge of government assignments anywhere in India.

Place
Date

Signature of Candidate

clavp 95/561



THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY . PATIALA

Adv No PAS/6/95 Applications for the post of Professors (4500 150-5700-200-7300) Assistant Professors (3700 125 4950 150 5700) Lecturers System Analyst-cum-Programmers and Project Leader, EDC(2200 75 2800 100 4000) are invited on prescribed proforma, obtainable from the office of the Registrar by sending a crossed Indian Postal Order or Demand Draft payable at Patiala of Rs 25/- for the following regular Plan/Project (marked *) and leave vacancy (marked \$) posts

S No	Department/School/ Centre/Cell	No of Posts			Specialisation
		Prof	Asstt Prof /Lecturer	Others	
1	Department of Computer Science & Engineering	2	1		Computer Architecture & Design, Communications & Net Works, Distributed Computing Real time systems, Operating System Compiler design, Database system, Software Engg & Development Software metrics Object oriented Programming & Design, Computer Graphics & Image Processing Intelligent System & Robotics
2	Department of Electrical & Electronics Engg	1	2+1		Integrated Circuits, Microwave Engg Communication Engg Space Communication
3	Department of Mechanical & Industrial Engg	1+1\$	2		Mechanical Design, Thermal Engineering Computational Fluid Dynamics Mechanical Vibrations Production (CAD/CAM Robotics Automation) Industrial Engg (Mgt Information Systems Financial Mgt Systems Design)
4	School of Basic & Applied Sciences	1			Analytical Polymer Solid State Chemistry
5	Computer Centre (System Analyst cum Programmers)	-		1+1*	Programming Languages Object Oriented Programming & Design, Database Systems, Computer Systems Performance Monitoring and Tuning Computer Graphics, Multimedia Software metrics
6	Entrepreneurship Development Cell (EDC) (Project Leader)			1	Entrepreneurship Development Project preparation Management of Small Scale Industries

Essential qualifications and experience for the posts at S No 1 to 5 are as approved by the Government of India, MHRD (Department of Technical Education)/AICTE and for post at S No 6 as approved by National S&T Entrepreneurship Development Board

Detailed information giving prescribed qualifications and reservation of posts shall be available in the information sheet attached with the application form

COMPLETED APPLICATIONS MUST REACH THE UNDERSIGNED BY Feb 5, 1996

**A JUNEJA
REGISTRAR**

CLASSIFIED ADVERTISEMENTS

**UNIVERSITY COLLEGE OF
MEDICAL SCIENCES
(UNIVERSITY OF DELHI)
& GURU TEG BAHADUR
HOSPITAL,
DELHI - 110 095**

Advertisement No MC/ESTAB2/11/
95-III

Applications on the prescribed form are invited for the posts of Sr Residents/ Sr Demonstrators under the Residency Scheme in the scale of pay of Rs 3150-100-3350

Two posts each for the Departments of Anatomy Biochemistry Physiology Anaesthesiology and one post each for the Departments of Paediatrics Dermatology & STD Radiology Psychiatry and Dentistry

Upper age limit 33 years as on 15.02.1996

E Q P G Degree or Diploma in the subject concerned. For Non-clinical Departments person possessing M Sc (from Medical Faculty only) in the subject concerned will also be eligible the scale of pay in which case will be Rs 2000-60-2120

NOTE In each subject one out of five posts (atleast one) is meant for candidates belonging to SC/ST If no suitable candidate is available the post will be filled up by any other suitable candidate

The prescribed application form can be obtained from the Office of the University College of Medical Sciences Guru Teg Bahadur Hospital Delhi-110 095 personally or on written request alongwith a self addressed envelope of size 28cm x 13 cm with postage stamps worth Rs 3/- The cost of the form is Rs 5/- which can be sent by Indian Postal Order drawn in favour of 'The Principal University College of Medical Sciences Delhi-110 095' The last date for receipt of application is 05.02.1996

PRINCIPAL

Office of the Registrar
**GAUHATI UNIVERSITY
GUWAHATI - 14**

No G/VI/DAB/65/94

Applications are invited from intending candidates for a post of Junior Research Fellow to work in the Research project entitled "Studies of photoluminescence and photovoltaic effect on CdTe thin films prepared by sputtering under Dr A Rahman Deptt of Physics Gauhati University Guwahati 14

The fellowship will carry a fixed salary of Rs 1800/ p.m The applicant should have 1st Class M.Sc in Physics or higher second class M.Sc degree with any specialization Non qualified candidate will

get Rs 1200/- p.m preference will be given to candidates having research experience in experimental solid state Physics

Application on plain paper stating name address age, academic qualification along with attested copies of Marksheets certificates etc from H.S.L.C onwards should reach the undersigned by 13.1.96

No T A/D A is admissible for appearing at the interview before the Selection Committee which will be held on 20.1.96 at 2.00 P.M in the Academic Registrar's chamber Gauhati University No separate communication will be made for the interview All documents in original will have to be produced at the time of interview

M C. Sarma
ACADEMIC REGISTRAR



**GRADUATE SCHOOL OF
BUSINESS & ADMINISTRATION**
OFFICE ALTO CENTRE - 28 FAIRWAY
POST BOX NO. 1 GHAZIABAD 201001 U.P.
Approved by AIC - Govt of India

RECRUITMENT NOTICE FACULTY & STAFF

Bio data from prospective candidates with suitable teaching and industrial experience are invited for faculty positions in the areas of **Marketing, Finance, Production, Operations, HRD, Business Information System & Computers and Hospitality Management Hotel and Tourism Administration**

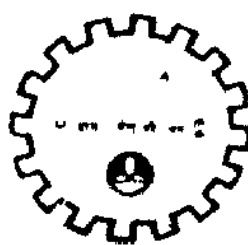
Senior Professor	6300-200-7300
Professor	5700-200-6300
Associate Professor	4500-150-5700
Lecturer	3000-100-3500 125-5000

The following staff is required

Asstt Registrar, Accounts Officer, System Manager, Programmer
Sr Scale - 2200-4000 Jr Scale - 2000-3500
Steno-typist, Asst Librarian 1200-2040

NOTE All the above posts carry other benefits of Central DA, HRA, CCA, CPF Also there is provision of reimbursement of Medical and Conveyance expenses, etc in addition to basic salaries in the scale Apply of Dr L.A. Khan, Dean of the Institute for faculty positions and to Capt A. Singh, Registrar for staff positions before 31st January, 1996

Dr P L MAGGU
EXECUTIVE DIRECTOR



ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

All India Council for Technical Education invites applications for Career Awards for Young Teachers in Engineering Technology Architecture Town Planning Management Pharmacy Applied Arts & Crafts and such other subjects included under definition of TE as per the AICTE Act 1987. The purpose of the scheme is to identify young talented teachers who have good potential in their area of specialisation and to promote their professional growth by enabling them devote maximum time in research and study with minimum teaching responsibilities.

Eligibility

Career Awards are offered for a period of 3 years to teachers having postgraduate and doctoral and/or other equivalent professional training who are not more than 35 years of age as on 1st July of the year of award. For women candidates the age is relaxable by 5 years.

Remuneration

The Council shall pay to the awardee his/her full salary and allowances and the awardee is treated to be on duty and therefore will continue to earn normal increments and maintain him/her seniority in his/her institution/university/college. The awardee will be entitled to holidays and such other privileges as per him/her entitlement in the university/college. In addition, the Council will provide each awardee a research grant and contingency upto Rs. 2.00 lakhs (Rupees two lakhs only) for purchase of equipments, books, journals, field works, travel in India and appointment of technical assistants as per university/college/institution rules. The awardee may use research grant for travel abroad if necessary for his/her research work with prior approval of the Council and Head of Institution, but the period abroad shall not exceed six months.

Application in triplicate in the format given below completed in all respects along with necessary documents may be forwarded through the University/College/Institution where the candidate intends to work (one advance copy may be sent directly) to

The Bureau Chief (Career Development)

All India Council for Technical Education

I G Sports Complex, I P Estate

New Delhi 110 002

on or before Jan. 22, 1996

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

APPLICATION FORM

(Please submit three copies)

SCHEME OF CAREER AWARD FOR YOUNG TEACHERS

SECTION A BIO DATA OF THE APPLICANT

- 1 Name (in block letters) and Designation
- 2 Address
 - (a) Institutional
 - (b) Residential
- 3
 - a) Status University/ College/ Institution
 - b) Date of joining the Institution
- 4
 - a) Whether the Institution is recognised by AICTE Yes/ No
 - b) Whether the institution has the postgraduate teaching and research facility Yes/No
- 5
 - a
 - i) Date of Birth
 - ii) Age as on 1st July of the current year
 - iii) Sex
 - iv) Category — GEN/SC/ST/OBC
 - b) Highest Academic Degree
 - c) Positions held till date
 - d) Awards received (if any)
 - e) Field of specialization (Major & Ancillary)
 - f) Highlights of important contributions (within 300 words)
 - g) Total number of Seminars attended

i) International

ii) National

- 6 Membership of Professional/Learned Bodies/ Societies
- 7 Publications (Mention only those published during the past five years)
 - a) Research papers (Indicate only those which were published in the referred journals)
 - b) Books
 - c) Patents
- 8 Research Projects Co-ordinated (Also mention the sponsoring body)
- 9 Proposed Plan of work (Details are to be provided separately in Section B)
- 10 Other relevant information
- 11 Present Salary & Allowance (Please attach a Salary Certificate from the Institutions concerned)

SECTION B PROPOSED PLAN OF WORK

- 1 Nature of Work
 - a) Specify major Area/Theme to be undertaken during the tenure of Career Award
 - b) Research
 - c) Design and Fabrication
- 2 Details of Proposed Plan of work
 - a) Activity plan
 - b) Time plan (chart)
 - c) Expected outcome
- 3 Name and Address of the Institution where the applicant intends to work
- 4 Whether the Institution has agreed to extend facilities to carry on work (attach copy of the letter from concerned authority granting the permission)

SECTION C CERTIFICATE

- I I certify that
 - a) The details given under Section A and Section B are correct
 - b) If any information is found to be incorrect in a later date the entire money would be reimbursed to the Council
 - c) The funds received shall be utilized/used for the purpose for which they are requested and sanctioned
 - d) I shall abide by the terms and conditions laid down by the Council during the tenure of the Award
- Signature of the applicant
- II I certify that
 - a) The details given by the applicant under Section A and Section B are correct
 - b) If any information is found to be incorrect on a later date the entire money would be reimbursed to the Council
 - c) The Univ./College/Inst. has been approved by the AICTE
 - d) The applicant has enclosed all the relevant documents/papers
 - e) The Institution shall provide all facilities to the candidate during the tenure of the Award

Signature

(Head of the Institution)

Name

Address

Date

Office seal

SHAHEED BHAGAT SINGH
COLLEGE OF ENGINEERING & TECHNOLOGY, FEROZEPUR
 Camp Office 3rd floor, Amar Building, Sector 17-A, Chandigarh
 (Established by the Punjab Government)

Advertisement No 3/95-96

Applications are invited for the following posts for Shaheed Bhagat Singh College of Engineering and Technology Moga Road Ferozepur. The College is registered as a Society under the Societies Registration Act 1860. The College is fully funded by the Punjab Government. The posts carry D A and other allowances as admissible under the College Bye-Laws. Applications should be submitted on plain paper in the FORMAT given below. Write clearly on the top of the envelope the name of the post and department for which you are an applicant. The application accompanied by crossed Indian Postal Order of Rs 15/ (Rs 7.50 for SC/ST candidates) in favour of the Principal and payable at Chandigarh should reach Camp Office of the College at Amar Building S C O 10 11 12 3rd floor Sector 17 A Chandigarh upto 22.01.96 by registered post.

- 1 Professor** One each in Production Engg Computer Science & Engg Chemical Engg Materials Engg Applied Mathematics Applied Physics Applied Chemistry & Humanities in the specialisation of English Language OR Economics OR Psychology OR Sociology in the Pay scale of Rs 4500-7300

Essential Qualifications Ph D with First Class Bachelor's or Master's Degree in Engg/Technology OR Ph D Degree with First Class Bachelor's or Master's Degree in appropriate branch for teaching posts in Humanities and Sciences

Experience Ten years distinguished experience in teaching/industry/research out of which five years must be at the level of Assistant Professor or equivalent

Candidates from industry/profession with recognised professional work of high standard recognized at national/international level equivalent to Doctorate would also be eligible

2 Assistant Professor

- | | |
|---------------------------|--------------------------------|
| a Mechanical Engg | THREE (One reserved for SC/ST) |
| b Production Engg | TWO (One reserved for SC/ST) |
| c Industrial Engg | Three (One reserved for SC/ST) |
| d Computer Science & Engg | TWO (One reserved for SC/ST) |
| e Chemical Engg | ONE |
| f Materials Engg | ONE |
| g Applied Mathematics | ONE (Reserved for SC/ST) |
| h Applied Physics | ONE (Reserved for SC/ST) |
| i Applied Chemistry | ONE (Reserved for SC/ST) |
| j Humanities | ONE (Reserved for SC/ST) |

(In the specialisation of English Language OR Economics OR Psychology OR Sociology)
 in the pay scale of Rs 3700-5700

Essential Qualifications Ph D in appropriate branch with First Class in Master's Degree in case of teaching posts in Humanities and Sciences OR First Class in Master's Degree in appropriate branch of Engg/Technology

Experience Five Years experience in teaching/industry/research at the appropriate level

3 Lecturer

- | | |
|---------------------------|-------------------------------|
| a Mechanical Engg | FOUR (Two reserved for SC/ST) |
| b Production Engg | FOUR (Two reserved for SC/ST) |
| c Industrial Engg | FOUR (Two reserved for SC/ST) |
| d Computer Science & Engg | ONE |
| e Chemical Engg | ONE |
| f Material Engg | ONE |
| g Applied Mathematics | TWO (One reserved for SC/ST) |

- | | |
|---------------------|------------------------------|
| h Applied Physics | TWO (One reserved for SC/ST) |
| i Applied Chemistry | TWO (One reserved for SC/ST) |
| j Humanities | TWO (One reserved for SC/ST) |

(In the specialisation of English Language OR Economics OR Psychology OR Sociology)
 in the Pay Scale of Rs 2200-4000

Essential Qualifications First Class Bachelor's Degree in appropriate branch of Engg/Technology OR First Class Master's Degree in appropriate branch of study in case of teaching posts in Humanities and Science

NOTE In the event of SC/ST candidates not being available posts will be filled with candidates from open category

First class rail fare or deluxe bus fare will be paid to the candidates called for interview from outstation. A C bus fare is also permissible to candidates for the post of Professor. Payment will be made only on production of receipts for the rail/bus fare paid.

Candidates in service should apply through proper channel. An advance copy accompanied by requisite fee and attested copies of certificates/supporting documents and No Objection Certificate from the employer should reach this office before the closing date.

APPLICATION FORMAT

Name of the post applied for
 Department to which applied for

Space
for
Photograph

- 1 Name and full address with telephone no. if any
- 2 Father's name/Husband's name
- 3 Date of birth
- 4 Date and year of passing B E with name of college & university
- 5 Date and year of postgraduate qualification(s) with name of university
- 6 Experience with special mention of teaching experience in engineering college/institution
- 7 Membership of professional societies
- 8 Prizes Honours Awards
- 9 Publications both in national and international journals
- 10 Present employment Name and address of employer and pay drawn
- 11 Whether SC/ST
- 12 Attested copies of certificates and testimonials

Signature of Candidate

R C BAHL
PRINCIPAL